THE ORIGINS
OF CONTEMPORARY
PSYCHOLOGY

G. V. [illegible]

BY

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INTRODUCTION TO THE FIRST EDITION

We propose to publish a series of studies dealing with special points of Psychology or Criteriology.

Our standpoint is that of the Aristotelian and Scholastic Philosophy; but, being imbued with a thoroughly peripatetic spirit, we desire to keep in constant touch with contemporary science and thought. The Middle Ages excelled in reflecting upon general truths. Modern inquirers are wonderfully equipped for the work of analysis, and bring thereto as much patience as sagacity. Is it not evidently the proper task of a time-honoured philosophy desirous of renewing its youth in the world of to-day to bring the wisdom of past ages to bear upon the latest triumphs of science and doctrines now accepted? And if this task is faithfully discharged, may not a real advance be legitimately anticipated?

Among the various reviews of what we have already published is one which we desire to quote, because it bears witness to the fact that the Neo-Thomist aim has been correctly appreciated in the scientific circles from which it comes. It appeared in M. Richet's *Revue scientifique*. "This work"

—our treatise on *Psychology*—" is pointing out to those who have giv Spiritualism and who are looking for which may be reconciled with science

" The Neo-Thomist school has rene of Scholastic teaching by becomin imbued with the peripatetic spirit. all the doctrines that were founde scanty knowledge of nature, and it vantage of modern discoveries, s according to the method of Aristotle.

" So great is the vitality of this p it finds a place in its scheme for the researches of physiology and psychop compromising any principle, and wit representing science, as is constantly dard books. Far from dreading ph vestigation it regrets that its studies system, mental localization, and th not been carried further, for in ther indispensable auxiliaries. M. Mercie the pioneers of physiological psycholo traditions which had been broken of many centuries. . . ."[1]

The present treatise is specially those who are no longer satisfied wit spiritualism, and if amidst the swarm growing crowd of facts that are arou are in search of some guiding princi they may perhaps be able to take ac comparison we shall endeavour to the psychology of Descartes, the c the official spiritualism, and the anthropology of Aristotle and the Middle Ages.

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[1] *Revue scientifique*, t. li., 189

Chapter I is devoted to an *examination of the psychology* of the great French innovator. In it we shall deal first with his exaggerated *spiritualistic* theory, and then with his *mechanical* theory as applied to the study of man.

Chapter II aims at determining the historical evolution of the Cartesian psychology, and we do this according to the scheme laid down in Chapter I, examining, first, the *evolution of spiritualism* (Art. I), which gives rise to Occasionalism, Spinozism, Ontologism (Sect. I), and Idealism (Sect. II); next, the *evolution of the mechanical theory* (Art. II).

We shall not dwell upon the now abandoned theories of Occasionalism and Ontologism, but we shall have something to say of *Idealism*. We shall inquire into its origin, pointing out the parts played by Locke, Berkeley, Hume, and Kant in its development.

Then we shall refer to the influence of the sensationalist ideas of Locke, Hume, and Condillac, in England and in France; then we shall see the influence of *Sensationalism* combine in the history of modern psychology with that of *Mechanism* (the *mechanical theory*), and these various factors result in the *positivist* or *agnostic* character which is generally a feature of contemporary *Idealism*.

The present state of contemporary psychology will be the subject of Chapter III. In it we shall try to prove the insufficiency of positivist Idealism for the solution of the fundamental problems of psychology (Art. I).

Then will follow a brief analysis of the philosophic systems of contemporary thinkers, amongst whom we have selected as typical Herbert Spencer in England, Alfred Fouillée in France, and Wilhelm Wundt in Germany. In these masters of psychology we shall trace the various influences, the origin of which has been sketched in the first two chapters.

These same influences are to be found on all sides in the teaching, the writings, and the questions of to-day. And hence contemporary psychology is characterized by these three marks: first, *by a Cartesian and exclusively spiritualistic conception of psychology;* next, by the *abandonment of metaphysics*, or by *Positivism;* and this, owing to its *idealistic* form, leads on to *Phenomenalism*, or to a sort of *idealist and subjectivist Monism.* On the other hand, *experimental psychology* is developing to an extraordinary extent (Art. III).

In the following chapters the ruling ideas of contemporary psychology will be discussed. It must be understood that we shall not go into details of system or of fact, but that we shall confine ourselves to criticizing systems in principle, our sole aim being to map out the ground in which we shall endeavour to investigate special questions.

In Chapter IV the Cartesian notion of psychology will be contrasted with the ideas of Aristotle and the Scholastics on the subject of human psychology, or rather anthropology. It is entitled *Psychology and Anthropology.*

Chapter V essays a *criticism of the idealist principle.*

Chapter VI deals in the same manner, in a general way, with *the mechanical theory.*

Chapter VII contains an examination of *Positivism*, or *Agnosticism in metaphysics*.

Finally, Chapter VIII, which is the last, gives a sketch of the Neo-Thomist movement. It insists on the present importance of criteriological problems and on the rôle of experimental science in psychology. It is directly addressed to those who, accepting our point of view, desire to take stock of their position, strength, and weakness, and therefore of their duties.

LOUVAIN,
October, 1897.

NOTE ON THE SECOND EDITION

WHILE the general outlines remain unmodified, the references and quotations have been brought up to date.

May, 1908.

CONTENTS

INTRODUCTION - - - - - v

CHAPTER I

THE PSYCHOLOGY OF DESCARTES - - - 1

Art. I. Its exclusively Spiritualistic Theory - 1

Art. II. Its Mechanical Theory as applied to the Study of Man, or to Anthropology - - 21

CHAPTER II

THE EVOLUTION OF THE CARTESIAN PSYCHOLOGY - 37

Art. I. The Evolution of the Cartesian Spiritualism - - - - - 38

Section I. Occasionalism, Spinozism, Ontologism - - - - - 38

Section II. Idealism:

1. The Origin of Idealism - - - 41

2. The Origin of the Positivist Character of Idealism - - - - 49

Art. II. The Origin of Mechanism (the Mechanical Theory) - - - - - 53

CHAPTER III

CONTEMPORARY PSYCHOLOGY - - - 69

Art. I. The Insufficiency of Positivist Idealism for the Solution of the Fundamental Problems of Psychology - - - - - 69

PA

CONTEMPORARY PSYCHOLOGY—*continued:*

Art. II. Masters of Contemporary Psychology - 7
    Herbert Spencer - - - - 7
    Alfred Fouillée - - - - 10
    Wilhelm Wundt - - - - 12
Art. III. General Characteristics of the Psychology of To-day - - - - 16
    Exclusive Study of the Facts of Consciousness - - - - - 16
    Abandonment of Metaphysics - - 16
    Experimental Studies - - - 20

CHAPTER IV

PSYCHOLOGY AND ANTHROPOLOGY - - - 21

CHAPTER V

CRITICISM OF IDEALIST PRINCIPLE - - - 24

CHAPTER VI

CRITICISM OF THE PRINCIPLES OF MECHANISM - 26
    Mechanism and Physical Science - - 26
    Mechanism and the Doctrine of Final Causes - 27

CHAPTER VII

CRITICISM OF POSITIVIST PRINCIPLES - - 28

CHAPTER VIII

NEO-THOMISM - - - - - 320

CONCLUSION - - - - - 349

THE ORIGINS OF CONTEMPORARY PSYCHOLOGY

CHAPTER I

THE PSYCHOLOGY OF DESCARTES

I

ITS EXCLUSIVELY SPIRITUALISTIC THEORY

DESCARTES appears in the history of philosophy as a great innovator.

Read his life, refer to the scholars and philosophers who give a review of his work, and you will everywhere find the same general estimate: Descartes made a revolution in the world of thought, and he is the father of the modern school of thinkers.

But wherein does this revolution consist? How did Descartes bring it about?

The replies to these questions are far from being in agreement with one another.

Was the writer of the *Discours de la méthode* the first to break with tradition, and to substitute "free inquiry" for the principle of authority? Assuming such a work to be commendable, the credit for it would belong to the founders of the Reformation and to the bolder spirits of the Renaissance, to Campanella and Giordano Bruno.

Was he an originator in science and mathematics? Astronomy and the mathematical sciences took a fresh start, writes M. Liard, with Copernicus, Tycho Brahé, Kepler, Cardan, Viete and Néper, while the experimental method was introduced by Galileo, Rondelet, Servetus, Aselli, Harvey and Bacon.

Was he the creator of a method, of method itself? Strictly speaking—No. The four principles which summarize the Cartesian method finally come to this: that man's mind must begin by decomposing what is complex into its primordial elements, "trying to discover in everything that which is most absolute," and forming clear and distinct ideas of it; and then it must make use of these absolute elements, resulting from analysis, to re-form the original compound. His second principle is "to subdivide every problem demanding investigation into as many sections as possible, and as may be required the better to solve it." The third is "to do my thinking in an orderly way, beginning with the subjects that are simplest and most easily understood, and gradually rising step by step to the knowledge of the most complex."[1]

But this twofold process of dissection and combination, of analysis and synthesis, is that described in the *Organon* and faithfully followed by all the disciples of the founder of the Lyceum.[2] Hence it was not in the invention of a method, which can really be called new, that the genius of Descartes stands revealed.

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[1] *Discours de la méthode*, 2ᵉ partie. Cf. Liard on *Descartes* in the *Grande Encyclopédie.*

[2] See our *Cours de philosophie.* Logique, 4th ed., Ch. III., Art. 3.

What, then, is his distinctive contribution to thought? The conception of a science of pure mathematics which would apply to every kind of research.

He was at Neuberg on the Danube in 1619. Held up by winter, and confined by himself to a little room, "where he found leisure to enjoy the company of his own thoughts," Descartes dreamed of a science wider than geometry and arithmetic and algebra, of a science of order and proportions to be called "Universal Mathematics," which would perhaps disclose to him the secret of the whole of Nature. This is what we gather from reading the *Discours de la méthode*, as M. Fouillée justly remarks; and this, too, is confirmed by the epitaph which was written by one of his most intimate friends, Chanut: "In his winter leisure, when measuring the mysteries of Nature on mathematical principles, he ventured to hope that the same key would unlock the secrets of both."[1]

Indeed, Descartes is above all a mathematician. In philosophy, as in physics and physiology, he is a geometrician. Geometry is more anxious about the strict inevitableness of its deductions than the breadth and accuracy of its preliminary observations. It is apt to be one-sided, looking at things from a single point of view.

We shall see both the qualities and defects of the geometrical spirit of Descartes coming out in his studies concerning the soul and the body. And when at last the inferences of his deductive psychology bring him face to face with the inevitable opposition between the thinking mind and the extended body, the geometrician shuts his eyes to the consequences of his system, the proud ideal edifice remains, but the anthropological foundations are left long unsettled by the shock. Let us not, however, anticipate.

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[1] A. Fouillée, *Descartes*, pp. 11, 12.

What is the starting-point of the Cartesian psychology?

Descartes' philosophy may be condensed into his famous formula: "I doubt, I think: therefore, I exist."

To curtail the errors of the human mind, to uproot misleading illusions, whether proceeding from education, the senses, or from some wicked spirit which rejoices in playing upon our credulity; then, to set upon a solid and henceforth immovable foundation philosophy reconstructed on a new plan, such is the root-idea of the Cartesian system.

Psychology, indeed, thus springs up like a plant from its seed.

Urged thereto by doubt, says Descartes, I cast out of my creed, first, the teaching of tradition, next, the testimony of the senses; for I remember how "I have often been misled by the senses, and how prudence bids me never to give my full confidence to those who have once deceived me." Then I get rid of the affirmations of the inner sense which tells me, for instance, "that I am here, sitting by the fire in my dressing-gown, holding these papers or suchlike things . . . because I remember how often I have been deceived, when asleep, by similar delusions, and, dwelling on this thought, I see quite plainly that there are no sure signs to enable me to distinguish a waking from a sleeping state, so that I am lost in wonder; and so great is my astonishment as almost to persuade me that I am asleep."

Lastly, I cast out of my belief the subject-matter of the simplest and most general cognitions with regard to extension, number, etc., for I have a notion of a God who can do all things, and by whom I have been made that which I am. "But, how can I tell that He has not acted in such a manner that there is really no earth, no heaven, no matter of an extended character, etc., and that nevertheless I have sensations of all these things? How can I tell that He has not so acted that I am mistaken whenever I add up twos and threes, or count the sides of a square?"[1]

But, after having cast out of my belief all the persuasions that doubt has succeeded in unsettling, have I nothing left behind?

There only remains myself. "I" who doubt as to all these things, I represent to myself all the things about which I doubt, *videre videor, audire, calescere*[2]: "I think I see, hear, get hot: it is to no purpose that I try to imagine a very mighty and crafty deceiver who uses all his ingenuity in constantly deceiving me." What does it matter? "At any rate there is no doubt that 'I' exist, even if he deceives me: let him deceive me as much as he will, he will never be able to succeed in making me nothing, as long as I think that I am something."[3]

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[1] *Méditation* 1re.

[2] *Ibid.*, 2e.

[3] *Ibid.*

I have, then, at least one thing of which I am sure: it is that *I think*, and that *I*, the thinker, *exist*.

This one thing is certain and free from doubt, but it is *the only thing* that is so.

"But what did I think that I was hitherto? Without hesitation, I thought myself a man. But what is a man? Shall I reply, a rational animal? No, indeed; for then I must ask what is meant by 'animal' and by 'rational,' and thus by one question I shall insensibly be driven to ask an infinite number of others still more difficult and embarrassing. . . ."[1]

"Ought I rather to stop and consider the thoughts suggested to me by my own nature only, when I set myself to consider my being? I looked upon myself as having a face, hands, arms, and so forth . . . a body. I considered, moreover, that I ate and drank, that I walked, felt, and thought; and I referred these operations to the soul. But now, supposing that some crafty genius is using all his wits to deceive me, can I affirm that I have the least of all the things which I just now said belonged to the nature of the body? No. Can I admit that in myself there is any one of the attributes which I regarded as belonging to the soul? The first are those of eating and drinking and walking. But if it be true that I have no body, it is also true that I cannot walk or eat or drink. Feeling is another attribute, but one cannot feel without a body, quite apart from the fact that I used to think I had often felt things while asleep, which on waking I discovered that I had really never felt at all."

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[1] *Méditation 2*.

" Another attribute is that of thinking, and here I remark that thinking is an attribute that is really mine: alone it cannot be separated from me." *Cogitatio, haec sola a me divelli nequit, ego sum, ego existo, certum est.*[1]

I am, therefore, something that thinks, that is all, and this something that thinks I call indifferently mind, soul, intelligence, reason, a number of expressions the exact meaning of which I had not hitherto mastered. *Sum igitur praecise tantum res cogitans, id est, mens, sive animus, sive intellectus, sive ratio, voces mihi prius significationis ignotae: . . . quid igitur sum? res cogitans: quid est hoc? nempe dubitans, intelligens, affirmans, negans, volens, nolens, imaginans quoque et sentiens.*

Such, then, is the foundation of the Cartesian psychology. I am not a rational animal, or at any rate I cannot be sure that I am such; I cannot regard myself as having a body that feeds and walks and feels, for all these functions of vegetative life, of locomotion, of sensibility, imply the possession of a body, and I am not sure of having a body; all that upon reflection I can maintain as a certainty is this, that I am a being who thinks, doubts, understands, affirms, denies, wills or wills not, imagines and feels.

Further, says Descartes, this certitude only lasts as long as my doubt or my thought. " I am, I exist, that is certain: but how long? As long as I think; for perhaps it might happen that, if I were to cease thinking altogether, I should at the same time altogether cease to exist."[1]

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[1] *Méditation 2e.*

Thus the subject-matter of psychology is clearly defined. It is not man, body and soul, with his threefold life, vegetative, sensitive, and intellectual; it is the mind and its thoughts, just that, and that only.

Thought comprises all that the mind can be conscious of; all, therefore, of which it can be certain without any risk of illusion; it comprises intellectual cognitions, voluntary acts, and the phenomena of imagination and sensibility.

Descartes denies certitude to the phenomena of imagination and sensibility so far as they depend upon the body, for the existence of the body finds no sufficient guarantee of certitude in the soul's consciousness, but he admits their knowableness so far as they depend upon the soul and come within the immediate grasp of thought.[2]

So, then, we may thus sum up the psychology of Descartes: a spirit endued with thought, and that thought manifesting itself in three different ways—intellectual, volitional, and sensational.

As to his *method*, plainly it can be no other than that of *consciousness*, for, as his definition of the subject implies, nothing belongs to the soul except so far as it falls within the reach of consciousness.

Since consciousness belongs exclusively to the mind, animals without minds cannot have consciousness; hence they cannot have cognitions, will, and sensibility, and they are bodies that do not differ by nature from other bodies, and are, therefore, as we shall presently see, merely aggregates of material atoms subject exclusively to mechanical laws—in fact, they are but machines and automata.

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[1] *Ego sum, ego existo, certum est. Quamdiu autem? nempe quamdiu cogito: nam forte etiam fieri posset si cessarem ab ab omni cogitatione ut illico totus esse desinerem.* —*Médit.* 2e.

[2] This consideration is strongly brought out by a capable Cartesian, M. l'Abbé Duquesnoy, in his book, *La perception des sens, opération exclusive de l'âme.*

Having thus absolutely determined the subject-matter of psychology, Descartes contrasts it with material bodies, the subject-matter of physics.

Here we shall simply indicate this new consideration, for we shall have to come back to it *ex professo* later on.

Methodical doubt applied to our judgements about material things discovers errors constantly arising from our attributing to bodies properties which really belong only to ourselves. Such, for instance, are the colours and tones that we assign to external bodies when they have no reality except in ourselves.

But when we carefully eliminate from our judgments as to bodies all that we can get rid of without doing away with them altogether, what remains? These bodies seem to us to be invested with some outward shape, and to be able to move: but this shape and motion are the effects of extension; therefore it follows that the bodies consist of extended matter. Now just as the mind is something which only thinks, so is the body something which is only extended. Between these two, thinking mind and extended matter, there is a radical incompatibility; they absolutely exclude one another.

We have seen what the soul is in itself, *i.e.*, "something that thinks"; we have contrasted it with the body, especially with the human body, "something extended, governed by the laws of motion." Before going further into the analysis of the nature and content of thought, there is a question to be cleared up: what relation is there between thought and the thing that thinks, between the conscious act and the principle from which it springs?

Descartes replies that thought is an attribute of the soul, and therefore that there is no real distinction to be drawn between the two.

Under the term *substance* Descartes understands being that has no need of any other thing in order to exist.

Body and mind are substances in the sense that they require only divine support in order to exist.[1]

Substance can only be known by its attributes.

By the word *attribute* Descartes understands a quality inseparable from its substance, thus differing from the variable qualities called *modes* or *modifications*. Any sort of attribute may help to make known the substance in which it inheres; but nevertheless every substance has a chief attribute presupposed bythe other qualities: it is this that constitutes the nature or essence of the thing. Thus extension in length, breadth, and depth constitutes the nature of a bodily substance, thought that of a spiritual substance.[1]

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[1] *Per substantiam nihil aliud intelligere possumus quam rem quae ita existit, ut nulla alia re indigeat ad existendum. . . . Nomen substantiae non convenit Deo et creaturis* univoce. *Possunt autem substantia corporea, et mens, sive substantia cogitans, sub hoc communi conceptu intelligi quod sint res quae solo Dei concursu egent ad existendum.*—*Princip. Philosophiae*, Pars 1^a, §§ 51, 52.

Between the substance and its attribute there is only a *rational* distinction.[2]

Strictly speaking, a *real* distinction is only to be found between two or more substances; and we can only perceive that the two really differ when we can know one clearly and distinctly without the other.

A *modal* distinction exists between a substance and its mode, or between two modes of the same substance.

A *rational* distinction is one which is ascertained between a substance and one of its attributes without which it cannot be conceived, or between two attributes of the same substance. We recognize such a distinction of reason by the fact that we cannot form a clear and distinct idea of the substance when we shut out the idea of its attribute.

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[1] *Et quidem ex quolibet attributo substantia cognoscitur : sed una tamen est cujusque substantiae praecipua proprietas, quae ipsius naturam essentiamque constituit et ad quam aliae omnes referuntur. Nempe extensio in longum, latum et profundum, substantiae corporeae naturam constituit ; et cogitatio constituit naturam substantiae cogitantis. —Princip. Philosophiae*, 1ª, § 53.

[2] *Triplex est distinctio, realis, modalis et rationis.*

Realis *proprie tantum est inter duas vel plures substantias : et has percipimus a se mutuo realiter esse distinctas, ex hoc solo, quod unam absque altera clare et distincte intelligere possimus. . . .*

Distinctio modalis *est duplex, alia scilicet inter modum proprie dictum, et substantiam cujus est modus ; alia inter duos modos ejusdem substantiae. . . .*

Denique distinctio rationis, *est inter substantiam et aliquod ejus attributum, sine quo ipsa intelligi non potest vel inter duo talia attributa ejusdem alicujus substantiae. Atque agnoscitur ex eo quod non possumus claram et distinctam istius substantiae ideam formare, si ab ea illud attributum excludamus ; vel non possimus unius ex ejusmodi attributis ideam clare percipere, si illud ab alio separemus.—Ibid.*, §§ 60-62.

Here is psychology reduced to its simplest form. It has no need of a number of faculties really distinct from one another: it has one substance, the thing that thinks; its attribute, thought; between this substance and its attribute, one rational distinction.

Thought or self-consciousness has this twofold characteristic: it is *clear* and *distinct*.

A perception is *clear*, according to Descartes, when its object is present to the mind without any intermediary. It is *distinct*, when it represents to me something in its own nature, excluding any other object.[1]

But, when I conceive myself as a being able to represent things to itself, my thought is both clear and distinct.

My thought is *clear*, for nothing is so immediately present to me as what I perceive in my soul. My thought is *distinct*, for the fact of thought sets up a radical distinction between my thinking spirit and extended bodies. Thought, indeed, essentially excludes extension and properties dependent upon extension, *i.e.*, divisibility and motion.

The fact that the characteristics of thought, that is to say of the act of consciousness, and of extension are irreducible is to Cartesians an intrinsic proof of the immateriality of the soul. This proof is not taken from the characteristics of *intellectual* cognition, considered as being superior to sensible perception and to the act of imagination; it arises entirely from the characteristics of the act of *consciousness*.

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[1] *Claram voco illam perceptionem, quae menti attendenti praesens et aperta est; sicut ea clare a nobis videri dicimus, quae oculo intuenti praesentia, satis fortiter et aperte illum movent. . . . Distinctam autem voco illam quae, cum clara sit, ab omnibus aliis ita sejuncta est et praecisa, ut nihil plane aliud, quam quod clarum est, in se contineat.—Princip. Philosophiae*, I^a, § 45.

Under the term, *act of consciousness*, the Cartesian psychology understands indifferently the act of the inner sense and the act of intellectual cognition.

The immateriality of the soul is further proved by the assumed simplicity or indivisibility of sensations or sensible desires, as well as by the characteristics of intellectual cognition and of higher volition.[1]

Hence we can understand why Cartesian psychologists, always influenced by the same considerations, begin with laying down the simplicity of the soul in order to deduce therefrom its spirituality. The Scholastics, on the contrary, make the simplicity of the soul a corollary of its immateriality.

We have just seen what is meant by thought. And now, what does it contain? What are our thoughts, and what have they to tell us about reality?

In other words, thought has been analyzed from a subjective point of view, and now Descartes passes to the objective, or rather critical, viewpoint to study the relations between the various thoughts of the soul and the objects they represent.

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[1] See Duquesnoy, *La perception des sens*; P. Janet, *Le matérialisme contemporain*, p. 211. Cf. D. Mercier, *Psychologie*, 7^e ed., t. i., No. 153, t. ii., Nos. 252 *ff*.

These are his own words: "I must divide all my thoughts into certain classes, and I must consider in which of these classes there is properly truth or error.

"Among my thoughts, some are as it were images of things, and these alone can be properly called ideas: as when I represent to myself a man, or a chimera, or heaven, or an angel, or even God. Others, in addition, take other forms according to my will or fears or affirmations or denials; and then I well think of anything as the subject of an operation of my mind, but thereby I also add something else to the notion I form of such a thing. Of this class of thoughts some are called *volitions* or *affections*, others *judgements*.

"Now, so far as concerns *ideas*, if they are considered only in themselves and not referred to anything else, they cannot strictly speaking be untrue; for, whether I imagine a goat or a chimera, I imagine the one no less truly than the other.

"Nor need mistakes be feared in the *affections* or *volitions*: for though I may desire what is bad, or even what never existed, it is nevertheless just as true that I desire it.

"Hence there only remain *judgements*, in which I must take the greatest care not to make mistakes. But the chief and the commonest of errors consists in thinking that my internal ideas are like or in conformity with things outside me.

"But amongst these ideas some appear to be born with me, others to be foreign to me and to come from outside of me, and others to be made or invented by myself. For, my possession of the faculty of conceiving whatever is generally called a thing, or a truth, or a thought, appears to be mine solely owing to my own nature: but if I now hear a sound, if I see the sun, if I feel heat, hitherto I have considered these notions arose from things outside me. . . . Now, what I have chiefly to do in this matter is to consider, with regard to the notions that seem to come from some external things, what are my reasons for thinking that they resemble these things. . . . But all this makes it pretty plain to me that it is merely through a blind and hasty impulse that I came to believe that there were things outside me which were different from my own being, which by the organs of the senses or in some other way communicated to me their notions or representations and imprinted their likeness upon me.

"But there is another way of investigating whether among the things the notions whereof exist within me there are any that exist outside of me. . . ."[1]

Here the criteriological problem is stated: how does Descartes solve it?

We may sum up his train of reasoning as follows:

My ideas, considered *subjectively* as certain ways of thinking, do not differ from one another; but viewed *objectively*, they do differ from each other.

First, there is one that represents me to myself; another represents God to me; others inanimate bodies, others animals, others angels; and others represent men to me, men like myself.

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[1] *Méditation 3*ᵉ.

The *objective reality* belonging to my ideas must have its sufficient reason. But this reason is only to be found in a being possessing really and *actually*, *formally* and *eminently*, whatever *objective* reality there is in our ideas. Otherwise, I shall be driven to say that there is in the object of my ideas something that is derived from nothingness.

As to the object of the notion of myself, there is no difficulty provided that I already have the certain knowledge that I myself am something that thinks. As to the ideas of other men, of animals and angels, I do not find it hard to explain their formation with the help of elements borrowed from ideas of corporal things and of God, even if outside of me there were no other men in the world, nor any animals or angels.

There remain the notions of things corporal and of God.

" As to the notions of corporal things, I find in them nothing of such magnitude and excellence that it may not be derived from myself. . . .

" Consequently, there remains only the notion of God, concerning which I have to consider whether there be anything in it that could not have come from myself. By the term ' God ' I understand a substance that is infinite, eternal, immutable, independent, omniscient, omnipotent, whereby I and all other things that are (if it be true that any really exist) have been created and made. But these advantages are so great and pre-eminent that the more attentively I consider them, the less I am persuaded that the notion I have of them can owe its origin entirely to myself. And consequently, I am driven to infer from all that I said before that God exists; for although the notion of substance is in me owing to the fact that I am a substance, nevertheless I should not have a notion of an infinite substance, I who am a finite being, if it had not been implanted in me by some substance that was really infinite.

"And I must not imagine that I do not conceive of the infinite by a true notion, but only by the negation of the finite, in the same way as I understand rest and darkness by the negation of motion and light; since, on the contrary, I see plainly that there is more reality to be found in an infinite substance than in a finite substance, and consequently that I have in myself primarily rather a notion of the infinite than of the finite—that is to say, a notion of God rather than of myself; for how could I know that I doubt and desire—that is to say, that I am not quite perfect—if I had in me no idea of a being more perfect than my own, by comparison wherewith I perceive the defects of my nature?"[1]

Besides, I who have this idea of God could not exist, if there were no God. I want to know, indeed, to whom I owe my existence. Perhaps to myself or my parents, or to some other causes less perfect than God; for one cannot conceive of anything more perfect than He, or even as good as He.

But, if I were independent of all others and myself the author of my being, I should not doubt about anything, I should not have desires, and lastly, no perfection would be lacking to me; for I should have given myself all those of which I have any notion, and thus I should be God. If I assume that my parents are the cause, I only raise a fresh difficulty. If I assume causes less perfect than God, I assume an impossibility, "for there must be at least as much reality in the cause as in the effect."

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[1] *Méditation* 3ᵉ.

Hence, I am driven to conclude that, from the sole fact of my existence, and from the fact that in me there is an idea of a supremely perfect Being—namely, God—the existence of God is very manifestly proved.

And now there is only one question to be cleared up: How did I obtain this notion? "I did not get it through the senses, nor is it a pure fiction of the mind, and consequently I can only say that this idea was born and conceived along with me from the day I was created, just as was the notion of myself. . . .

"This God has no defects, hence it is pretty clear that He cannot deceive, since our natural light tells us that deceit necessarily depends upon some defect."[1]

Therefore God's perfection is a pledge to us of the truth of our judgements upon external things; the only condition certitude requires of us is that we should abide by what is clear and distinct in our ideas.

Thus we have settled the twofold question of the nature and origin of our ideas. We have two innate ideas "springing up within us from the moment of our creation," the idea of myself, and the idea of God.

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[1] *Méditation 3e.*

These two ideas are clear and distinct—that is to say, immediate and our own. By means of these two ideas we can explain the formation of all our other ideas that are clear and distinct. The idea of God can only be explained by the operation, and therefore as depending upon the existence, of a perfect Being who is the author of it. A perfect Being cannot deceive us. Therefore our clear and distinct perceptions do not deceive us, but are a faithful expression of reality.

By way of general conclusion, let us now sum up the principal features of this first part of the Cartesian psychology.

I am a thinking substance.

My thought embraces all the facts perceived by the inner sense or consciousness, to wit, sensible or affective facts, volitional facts, and intellectual facts or judgements.

My nature is revealed by my thought; I am a spirit, whose attribute is to think. And hence psychological method must go entirely by the inner sense or consciousness.

Moreover, there is no real distinction between the substance and its attribute, between my soul and my thought. My thought proves the immateriality or spirituality of my nature, for the attributes of a thinking thing are incompatible with those of a corporeal thing. Thought and extension exclude one another. My clear and distinct ideas about each of them make me see this.

If I am merely a spirit whose whole nature or essence consists in thinking, the phenomena of the body, whether they belong to the vegetative or to animal life, have nothing to do with psychology, and belong exclusively to physics, or rather to mechanics.

Such is thought under its subjective aspect; from this point of view all our thoughts are the same. But, from an objective point of view, they differ from one another; many of them require borrowed elements to explain their origin; others, such as the idea of myself and the idea of God, are within me from the beginning.

The idea of God must owe its source to God Himself. Therefore God exists. But God, the perfect Being, cannot deceive me. Therefore I can rest assured that my ideas, provided that I keep to such as are clear and distinct, are a faithful expression of reality.

Thus the psychology of Descartes, both at its starting-point and in its final term, is bound up with a critical search for truth.

Here we shall not go at length into the critical side of the Cartesian philosophy, but confine ourselves to his psychology. We have hitherto regarded it so far as it proposes to devote itself entirely to studying the soul that thinks by means of consciousness. So far the Cartesian psychology is spiritualistic to excess. What will it become when it has to study the soul in its relations with man's bodily activities?

II

THE MECHANICAL THEORY AS APPLIED TO MAN OR TO ANTHROPOLOGY

When psychology is systematically confined to the investigation of the thinking soul, and thought is regarded as the distinguishing attribute of mind, the investigation of the soul plainly becomes by definition a study of the mind, and psychology exclusively spiritualistic.

But what is to be said of the manifestations of human life which cannot be associated with thought? To what principle shall we assign digestion, the beating of the heart, the circulation of the blood, the sense of sight, and the sense of hearing? How are we to treat such phenomena?

Descartes replies without hesitation. Whenever a phenomenon is not an act of consciousness, it does not depend upon the soul which is spirit, but upon the body.

The human body, like all other natural bodies, is only an extended substance with a capacity for motion. Hence, all phenomena that are not conscious thoughts attributable to the mind are modes of motion. Physiology, and the part of psychology which, along with Aristotle, we assign to the soul, not so far as it is spiritual or subjectively independent of the body, but so far as it is substantially united with the body, form two chapters of mechanical science. This is expressly acknowledged by Descartes. He begins his treatise on man as follows:

"I must first of all describe to you the body by itself, and then the soul by itself, and lastly I must show you how these two natures must be connected and united together to make men like ourselves.

"I suppose that the body is merely a statue or earthen machine made by God on purpose to resemble us as much as possible . . . so that it imitates all those of our functions which can be conceived as proceeding from matter and as depending solely on the arrangement of our bodily organs. We see clocks, artificial fountains, windmills and other similar machines, which are only the handiwork of man, and yet are not without the power of going on of their own accord in various ways. . . . So you may have seen in the grottoes and fountains of our Kings' gardens that the sole force of running water flowing from the spring is enough to put all kinds of contrivances in motion, and even to make them play some instruments or utter a few words, according to the various arrangement of the pipes that convey it.

"And of a truth one may very well compare the nerves of the machinery I am now describing to the pipes of the contrivances of these fountains; its muscles and tendons to the various engines and springs that set them in motion; its animal spirits to the water that impels them, the heart being their source, and the hollows of the brain their peep-holes. Further, breathing and such other functions as are natural and usual thereto, depending as they do upon the flow of these spirits, resemble the motions of a clock or windmill, which the ordinary flow of water may render continuous. The outward things which by their mere presence act upon the organs of the senses and thereby determine its motion in various ways according to the disposition of various parts of the brain, are like strangers coming into one of these grottoes or fountains and producing without knowing it what is going on around them; for they cannot go into it without walking over certain slabs so arranged that when, for instance, they come near some bathing Diana, they drive her to take refuge in the rushes, and if they go on following her, they bring a Neptune down upon them and threatening them with his trident; or, if they turn some other way, out comes a sea-monster spouting water in their faces, or suchlike other things, according to the fancy of the engineers who planned them. And lastly, when the *rational soul* has its place in this piece of mechanism, its centre will be in the brain, and there it will stay like the waterman who has to be in the man-holes where all the pipes in the machinery meet, when he wishes to set it going or to stop it, or to change its operations in any way."[1]

Further on, Descartes expresses himself very nearly thus:

"This motion of the blood which I have just explained is as much the necessary result of the parts you can see in the heart, of the heat[2] that can be felt by putting one's finger in it, and of the nature of the blood which can be experimentally ascertained, as the motion of a clock is the effect of the strength, the position, and the form of its weight and works.

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[1] *Œuvres de Descartes*, ed. Cousin, IV., pp. 336, 347-349.

[2] Descartes was mistaken, not knowing that the circulation of the blood is due to the contraction of the walls of the heart.

"The animal spirits are like a very subtle fluid or a very pure and lively flame: the heart continually begets them, and they ascend to the brain which acts as a sort of reservoir to them. Thence they flow to the nerves which distribute them amongst the muscles, and produce contraction and slackening according to their amount.

"After that I want you to consider that all the functions which I have attributed to this machine (the human body), such as the digestion of meat, the pulsation of the heart and of the arteries, the nourishment and growth of the limbs, breathing, waking and sleep, seeing, hearing, smell, taste, feeling hot and any other properties of the external senses; the impression of their ideas upon the organ of the common sense and of the imagination, and the retention or imprinting of these ideas upon the memory; the internal movements of the appetites and passions; and lastly, the external movements of all the members which follow so opportunely the many operations of the things that are presented to the senses as well as the passions and impressions that are to be found in the memory, that they imitate as closely as possible those of a real man—I want you, I say, to consider that *these functions quite naturally follow in this machine from the mere arrangement of the organs, neither more nor less than the movements of a clock or other automaton, from its weights and works*, so that so far as they are concerned we need not think of any vegetative or sensitive soul in it, or of any other principle of life or motion than the blood and the spirits continually stirred up by the fire constantly burning in the heart, a fire which does not differ by nature from any other fires to be found in other inanimate bodies."[1]

Please to mark Descartes' words: "*All these functions* (vital or sensitive) *naturally follow in this machine from the mere arrangement of the organs, neither more nor less than do the movements of a clock or other automaton. . . .*"

This affirmation implies a twofold thesis: first, that in the functions of the vegetative and of the sensitive life only mechanical forces come into play; next, that these forces are only efficient causes, the functions resulting from the mere arrangements of the organs, almost according to the saying of Lucretius, *Quod natum est, id procreat usum.*

And these two theses are expressly affirmed by Descartes. In his *Principia philosophiae* he formally declares that Physics may be reduced to Mechanics. The essence of the body is extension, and extension explains the shape and movement of extended bodies, and motion in its turn accounts for all further physical phenomena.

> "And therefore throughout the universe there is only one and the same matter to be found, and it is only to be known by its extent. And all the properties that we clearly perceive in it may be reduced to this, that it is divisible and mobile in its parts. . . . Every modification of it, and every difference of shape to be found in it, depends upon motion.

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[1] *Œuvres de Descartes*, ed. Cousin, IV, *loc. cit.*

"For I openly affirm that I know of no other matter of things corporal than that which is in every way divisible, and susceptible of shape and motion, that which geometricians call quantity, and take as the subject-matter of their demonstrations; that in it I observe nothing but such divisions, shapes, and movements; that I admit nothing to be true except that which can be proved to result from such common notions of truth as are indubitable. And because in this way all the phenomena of nature may be explained, as we shall see later on, I think we should not admit any other principle nor desire any other."

As to the cause of motion, it is twofold: one universal and primordial, the general cause of the sum-total of all the motions in the world; the other particular, in virtue whereof the different parts of matter acquire a motion which they had not previously.

The general cause of all motions manifestly appears to Descartes to be God only, for to create motion, says he, the gulf between non-existence and being had to be crossed; but that presupposed an infinite power.[1] But it is natural to an immutable God to act immutably. Hence God must keep up the movement He has made, and consequently the quantity of movement in the universe is invariable.

Descartes excluded from the study of nature, just as clearly, the search for final causes. God's work, he said, is far too great for us to understand; hence it would be presumptuous on our part to try to

[1] Cf. *Lettres de M. Clerselier*, No. 125.

determine the ends proposed to Himself by the Creator:

"Let us take care not to have too high an opinion of ourselves. . . . This is what would happen, if we were to think we could understand by our intellectual power the ends God set before Himself when He created the universe.

"Thus, in fine, we shall never get any of the motives underlying the things of nature out of the end God or nature had in view in creating them, because we ought not to claim to enter into God's designs; but, if we consider Him as the end of all things, we shall see what with the help of the natural light He has given us we ought to infer from His true attributes, a certain knowledge of which He requires of us so far as their effects fall within the scope of our senses."

Hence, the mechanical interpretation of the phenomena of vegetative and sensitive life, so far as they are not identified with thought, was a logical consequence of Descartes' general principles in the interpretation of nature.

From this proceeds the most striking characteristic of the Cartesian psychology: *the opposition it set up between the soul and the body.*

Descartes, as we have said, is above all a geometrician, a man of *simplifying* and *deductive* mind. In his study of the soul, he reduces all its activity to thought, and its nature to its aptitude for thinking. In his study of bodies, including that of the human body, he reduces all their properties to extension, all their activities to motion.

Now, it is of the essence of thought to exclude extension and motion, and it is of the essence of motion and extension to have nothing in common with thought. What, then, becomes of the union of soul and body? For there is, indeed, no doubt that there is a body which, unlike all bodies that are foreign to me, I regard as *mine*; there is no doubt that my soul can act and suffer with my body.[1] How are these indisputable facts to be explained?

"This question," says Descartes to the Palatine Princess Elizabeth, "appears to me to be the one that may most rightly be put to me, considering my published writings. For since there are two things in man's soul, and since on these depends all our knowledge of its nature, one of them being the fact that it thinks, and the other the fact that it is united to a body and acts and suffers along with it, I have said almost nothing of the latter, and have only endeavoured to make the first well understood, because my main design was to prove the distinction there is between soul and body. To do this, only the former was of any use, and the other would have been a hindrance."

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[1] "There is nothing," says Descartes, "that nature teaches me more expressly and sensibly than that my body is ill when I feel pain, and that it needs food and drink when I am hungry and thirsty. . . . And consequently I must have no doubt whatever that there is some truth in all that.

"Nature also teaches me by these feelings of pain, hunger, thirst, etc., that I not only dwell in my body, like a pilot on his ship, but that further I am very closely bound up with it, and so much confused and mixed up with it that I make up a single whole along with it. For, if it were otherwise, when my body is wounded, I should not therefore feel pain, I who am only something that thinks; but I should perceive the wound with the understanding only, as a pilot perceives with his eyes anything broken in his ship; and when my body wants to eat or to drink, I should just come to know that, even without being warned by my feelings of hunger and thirst: for all these feelings of hunger, thirst, pain, etc., are only certain dim ways of thinking, which proceed and result from the union and, as it were, from the mingling of the mind with the body."—*Méditation* 6ᵉ.

Thus Descartes admits that he has only regarded human psychology from one point of view; he has converted anthropology into psychology. This is the essential defect of his method

In fact, he emphasized the distinction between the soul and the body to the point of setting up an opposition between them, he relegated the soul to an infinitesimal part of the matter of the brain, and was satisfied to connect it there with the animal spirits to obtain information as to what goes on in the body, and to transmit orders by means of them to the nerves and muscles, and thus to control the movements of the body

But the more the opposition between the soul and the body is emphasized, the more does the natural possibility of their union disappear. But, just then, the Palatine Princess was bent on pressing home the question of the union of the soul with the body upon her eminent correspondent.

"But as to that which Your Highness so clearly sees," writes Descartes, "that it is impossible to conceal anything from you, I shall try now to explain how I conceive of the union of the soul with the body, and how the former is able to move the latter."

Descartes' explanation may be summed up as follows: All our knowledge depends upon certain primitive notions which nature has given us in order to know things. These primitive notions are sincere, and cannot deceive us. When we make mistakes, it is because we do not distinguish them, or else because we apply them to things wherewith they have nothing to do.

Do we, then, want to get a right idea as to the union of the soul with the body? We have to find out what is the primitive notion we naturally have of "the soul and the body together."

According to Descartes, we have various categories of primitive notions—some general and adapted to everything, such as the ideas of being, number, and duration; as to the body in particular, we have the notion of extension; as to the soul alone, that of thought; lastly, as to the soul and body taken together, we have only the idea of their union, and on this depends our idea of the soul's power of moving the body and of the body's action upon the soul.

How are these notions of the union of the soul with the body, and of a power whereby the soul acts upon the body and the body upon the soul, manifested to consciousness?

We are accustomed to attribute to supposedly real qualities of bodies, such as weight and heat, the power of acting upon other bodies. But when we represent to ourselves weight as a force that can move the body wherein it is towards the centre of the earth, we have no difficulty in conceiving how this force moves the body, nor how it is joined thereto, and we do not think that it is done by the real connection or contact of one superficies with another. We do not apply to weight the notion of any such action. For weight, as is proved in physics, is not a quality that is really distinct from any body. Hence it is in order that we may conceive of the way in which the soul moves the body that this particular notion has been given us by the Author of our nature, and consequently this notion ought to provide us with the solution of the anthropological problem of the union of the soul with the body. Here Descartes' words seem to lack their usual clearness, and we therefore put before our reader the whole of the rather lengthy passage, which we have endeavoured to reproduce in substance.

"First of all, I consider that there are in us certain primitive notions, which are as it were originals, on the pattern of which we form all our other cognitions, and that there are very few of these notions; for after our most general ideas as to being, number, and duration, which are adapted to all we can conceive, we have as to the body in particular only the notion of extension, from which follow the notions of form and movement; and as to the soul alone we have only the notion of thought, wherein are comprised the perceptions of the understanding, and the inclinations of the will; lastly, as to the soul and body taken together we have only the notion of their union, whereon depends that of the soul's power to move the body and the body's to act upon the soul, by causing its feelings and passions. I further consider that all the knowledge of mankind consists in nothing else than in well distinguishing these notions from each other, and in attributing each of them only to the things to which they belong; for when we desire to explain some difficulty by means of a notion that has nothing to do with it, we cannot help making mistakes; just as when we want to explain one of these notions by means of another; for since they are primary, each of them can only be understood by itself. And inasmuch as the use of our senses has made our notions of extension, shape, and movement much more familiar to us than any others, the principal cause of our errors lies in this, that we usually want to make use of these notions to explain things to which they do not belong, as when we try to use our imagination to form an idea of the nature of the soul, or when we wish to conceive of the way in which the soul moves the body by the way in which one body is moved by another body. And this is why, in the meditations which Your Highness has condescended to read, I have endeavoured to give a conception of the notions which belong to the soul only, marking them off from those that belong to the body only; the first thing that I have to explain afterwards is, how we must think of the notions that belong to the union of the soul with the body, apart from those that belong to the body only, or to the soul only. For this purpose, what I wrote at the end of my reply to the six objections may be of some use; for we cannot seek these simple notions elsewhere than in the soul, which has all of them in itself by nature, but does not always sufficiently distinguish them from one another, or else does not attribute them to the things to which they should be attributed. Thus, I think we have hitherto confused the notion of the force whereby the soul acts upon the body with that whereby one body acts upon another; and that we have attributed the one and the other, not to the soul, for we do not yet know it, but to the different qualities of bodies, such as weight, heat, and other qualities, which we have supposed to be real—*i.e.*, to have an existence distinct from that of the body, and consequently to be substances, although we have called them qualities. And in order to conceive of them, we have sometimes made use of notions which are in us for the knowledge of the body, sometimes of those which are in us for the knowledge of the soul, according as that which we attributed to them was material or immaterial. For instance, in supposing that heaviness is a real quality whereof we have no other knowledge except that it has the power of moving the body in which it is towards the centre of the earth, we have no difficulty in thinking of how it moves such a body, nor of how it is united therewith; and we do not suppose that this occurs through some real connection or contact of one superficies with another, for our own experience tells us that we have a particular notion for conceiving it; and I believe we use such a notion wrongly by applying it to heaviness, which is really in no way distinguished from the body, as I hope to show in physics, but that it has been given us that we may conceive how the soul moves the body."[1]

Descartes finishes his explanation thus: "I should be too presumptuous, if I dared to think that my reply would fully satisfy Your Highness."

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[1] *Lettres de M. Descartes*, t. i., No. 29, ed. Cousin, 1825, t. ix., pp. 125 *ff*.

In fact, Her Highness replied that she was not satisfied, and she asked for explanations on two points: first, as to the distinction between the three kinds of primary ideas used respectively for knowing the soul taken by itself, the body taken by itself, and the union between the soul and the body; next, as to the use of the comparison of heaviness for making the action of the soul upon the body better understood.

On the former point, Descartes replied that he "observes a great difference between these three kinds of notions, in that the soul can only be thought of by the pure intelligence; the body—that is to say, extension, form, and movement—may also be known by the intelligence only, but much better by the intelligence aided by the imagination; and lastly, the things pertaining to the union of the soul with the body can only be dimly known by the intelligence alone, and even by the intelligence aided by the imagination, but they may be very clearly known by the senses; and hence those who never think philosophically, and who only make use of their senses, never doubt that the soul moves the body and that the body acts upon the soul, but consider both to be one thing—that is to say, they think of them as united; for to think of the union between two things is the same as thinking of them as one thing. And metaphysical thoughts which call pure intelligence into play help to familiarize us with the notion of the soul; and the study of mathematics, which chiefly exercises the imagination in the consideration of forms and movements, accustoms us to frame perfectly distinct notions of bodies.

And, indeed, it is by simply making use of ordinary life and speech, and by abstaining from meditating upon and studying the things that exercise the imagination, that we learn to conceive of the union of the soul with the body."

Nevertheless, the philosopher ingenuously adds that the union of the soul with the body is something fundamentally inconceivable, and this reduces all his previous attempts at explanation to nothing. "I do not think," he says, "that the mind of man is capable of forming a clear and simultaneous conception of the distinction between the soul and the body, and also of their union; for, to that end, one must think of them as a single thing, and at the same time as two things, which is contradictory."

On the second point, Descartes' explanation goes so far as to attribute to the soul a certain extension, which results in the materialization of the soul and upsets the fundamental psychological theses he has hitherto maintained as to the incompatibility between thought and extension, between mind and matter.

"Since Your Highness observes," he says in conclusion, "that it is easier to attribute matter and extension to the soul than to attribute to it the power of moving a body or of being moved thereby, if it be immaterial, I beg you freely to attribute this matter and extension to the soul, for that is only conceiving it as united to the body; and after that has been well conceived and experienced in oneself, it will be easy to consider that the matter which you have attributed to this thought is not the thought itself, and that the extension of this matter is of another nature than the extension of this thought; in that the former is determined to a certain place from which it excludes any other extension of the body, a thing which the latter does not do; and thus Your Highness will easily return to the distinction between soul and body, notwithstanding your conception of their union."[1]

Whereupon Descartes slips off with the excuse that he has to go to Utrecht, whither he is summoned by the magistrate to explain something "that he has written about one of their ministers." "This compels me to end now, as I have to try to find a way of getting free of their chicaneries as soon as possible."

Thus the anthropological problem remains unsolved. All Descartes' vain endeavours only brought out its insolubility more plainly. The problem cannot be answered because it is badly stated. Man is not a combination of two substances, whereof one is the thinking soul, and the other an extended body—*he consists of a single compound substance.*

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[1] *Lettres de M. Descartes*, t. i., No. 30, ed. Cousin, t. ix., p. 127.

CHAPTER II

THE EVOLUTION OF THE CARTESIAN PSYCHOLOGY

We have seen how the psychology of Descartes resulted in a hopeless contradiction.

This contradiction was bound to arise from the opposition set up between the soul when reduced to being a substance without extension and the body regarded as an extended substance possessing nothing but mechanical motion.

We shall now see how the *exclusive Spiritualism* and the *Mechanism* (the spiritualistic and the mechanical theories) of the great French innovator continued to flow in different directions through the seventeenth and eighteenth centuries, until the different streams converged, and by their mingling gave rise to our contemporary psychology.

The stream flowing from the Cartesian *Spiritualism* divides at the outset and originates, on the one hand, Malebranche's *Occasionalism* and *Ontologism* and Spinoza's *Pantheism*, and, on the other hand, *Idealism*.

The stream derived from *Mechanism* broadens out under the twofold influence of philosophy and science, and impregnates our contemporary Idealism with *Positivism*.

I

EVOLUTION OF THE CARTESIAN SPIRITUALISTIC THEORY

Section I.—Occasionalism, Spinozism, Ontologism

Descartes' psychology contained the germ of Malebranche's occasionalist and ontologist philosophy.

It is impossible, says Descartes, to conceive of any *real* action of the soul upon the body or of the body upon the soul, for their two substances possess contrary properties that make their interaction incomprehensible. Is it not, then, natural to deny any such action and to maintain that when we feel as if we were controlling our members, the resultant acts are really the work of God, and when we think the soul is being influenced by animal spirits, such influence proceeds from God? Thus the soul's volitions become an *occasion* for God's causal operation upon the body, and the movements of the animal spirits become the *occasion* of an operation of God upon the soul, but the soul and the body have no real causality left.

But nowhere is the feeling of action more intense than in the commerce between soul and body. If, then, even there the feeling of action is illusory, it seems a legitimate inference to say that all the actions of created beings are but apparent, and that real causation is exclusively the work of the Creator.

What is, in reality, the action of a created agent upon the object acted upon, of a mover upon the object moved? You grant that the mover has a substance of its own, and you also give a substance to the object moved: how can the first substance really act upon the second?

Do you think of some entity passing from the agent into the subject? Clearly not, for during the passage from one term to the other, where would this entity dwell? Would it have an existence of its own, as being a substance? Or would it exist as an accident, inhering in an intermediary substance? In either case the difficulty remains undiminished, for then an account would have to be given of the possibility of a real action of this *intermediary* substance upon the patient, just as at first an account had to be given of the action of the *first* agent upon a patient substantially different from itself.

According to Malebranche, this puzzling problem could only be cleared up in one way, that is, by considering created beings as *present* to one another, but without ascribing to them any reciprocity of action upon each other, their apparent activity being the work of God alone, owing to the *occasion* of their mutual presence.

Rather, according to Spinoza, should we do away with the substantial distinction between creatures, and say that there is *only one substance* endowed with thought and extension: with thought, in order to explain the action whereof the soul is conscious; with extension, to explain corporal movements. Thus we get rid of the problem of causal communication at a stroke.

But has it been got rid of? That is the question.

It matters little; just now it is enough to show that Descartes' exclusivist psychology implied the Occasionalism of Malebranche and the Pantheism of Spinoza.

Under the influence of the French innovator's same extravagant Spiritualism, Ontologism was bound to arise, and to contribute in turn to the birth of Pantheism.

We are now on the ground of ideology and criticism. Whence does the soul get its ideas of extension, form, and bodily movements? From itself? But the attributes of the soul are diametrically opposed to those of the body, and therefore cannot provide the idea of it. Or from the body? But the body is independent of the soul. What could it have in common with the soul? There remains God, the last refuge of ideology when at bay. The objects of the notions of extension, form, and movement are to be found in God, the pre-eminent source of all reality in things created, and there, in God, man's reason perceives them. Thus God alone accounts for the *origin* of our intellectual perceptions, and He alone accounts for their *certainty*.

We know already that, according to Descartes, certainty of the existence of God is involved in our notion of the perfect Being. Hence, Descartes has in one way or another to assign to man's intelligence an intuition of the Supreme Being. Furthermore, if the soul has no direct relationship with corporal things, and if, in itself, it finds no trace of any action by them upon itself, the certitude of

119350

our external experience must have its basis in God alone. Therefore, from both points of view, the ideological and the critical, the existence and nature of our ideas of corporal things lead on logically to the affirmation of an immediate intuition of the Infinite.

Besides this, when Descartes wrote his *Discours de la méthode* and *Méditations*, the ideological theory of the Schoolmen about the abstraction of ideas had gone astray, and consequently the marks of the necessity, universality, and eternity of the object of thought, were easily confused with the divine attributes. In giving to Truth, Goodness, and Beauty their metaphysical characteristics, they imagined they caught sight of the divine ideas immediately and plunged directly into the depths of the Absolute.

Ontologism was born, and it marked out and cleared the path for *Pantheism*.

Section II.—Idealism

1. *The Birth of Idealism.*—Descartes' psychology developed in another direction in the cases of Locke, Berkeley, Hume, and Kant, and it gave rise to the idealist tendency that so deeply impregnates contemporary psychology.

Under the name of *Idealism* we understand the negation of the knowableness of anything except ideas, or, to put the same thing in an affirmative way, the affirmation of the unknowableness of anything except ideas.

Descartes is the father of Idealism.

We must, however, be still more definite.

Descartes' idealism was not universal, it was confined to things corporal. The reality of the thinking soul, the object of consciousness, the existence of a perfect Being, the immediate principle of the idea of the perfect, were not in dispute: the reality of the nature of the body was in question.

In fact, said Descartes, if bodies are perceptible by the soul, they must be able to act upon it; from the nature of the action experienced, the soul would then infer the nature of the agent: but how was a body, solely susceptible of motion and form, to act upon a spirit, the whole of the capacity whereof lay in thinking?

Again, supposing that such action were possible, of what use would it be? For after all, the body, as it is in nature, has extension, form, motion, and nothing else. But our representations of corporal sensations are notions of colour, sound, and affections of pleasure or of pain. What have these in common with one another?

Our soul is a harp the strings of which have been cunningly strung by nature. When the outside air strikes upon them, or the finger of the artist touches them, they vibrate and give forth harmonious tones. Are we to say that the breath of air or the artist's finger are harmonious? Plainly, no.

In the same way, the movements of the animal spirits, which are a sort of prolongation of the outward movements, are to the soul occasions for stirring it up to think; but the thoughts themselves, "the ideas of pain, colour, and sound, and of all sorts of such things," the term of the inner sense or consciousness, are solely the work of the soul.[1]

Certainly, Descartes was bound to have a *something external*, an indefinite something, that awakened the power of the soul and made it pass into an act of knowledge, what Kant called a *noumenon*, a *thing-in-itself*; but since it is admitted that the body has no real action upon the mind that thinks, and that there is no more similarity between our representations and the movement that produces them than there is between the harmony of an instrument of music or the finger or the wind that makes it vibrate, it is logical to infer that we only know our own ideas. This conclusion is the very definition of idealism.

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[1] "Whoever well understands how far our senses reach, and exactly what they bring to our thinking faculty, must admit that, on the contrary, none of our ideas of things are represented by them to us such as we form them mentally; so that there is nothing in our ideas which does not belong by nature to the mind or to its faculty of thought, if only certain circumstances belonging solely to experience be excepted. For instance, it is experience alone that makes us consider that such or such ideas as are now present to our minds refer to certain things which are outside of us; not that these things have been really transmitted to our minds by the organs of sense as we feel them, but because they have transmitted something which has given our mind, through its natural faculty, an occasion for forming them just now rather than at any other time. For, as our author affirms in his *nineteenth article*, in conformity with what he has learnt from my *Principles*, nothing can come into our souls from outward things through the senses, unless it be a few bodily movements; but neither such movements themselves, nor the shapes that arise from them, are ever conceived by us to be such as they are in the organs of sense, as I have abundantly explained in my *Dioptrics*; whence it follows that even the ideas of movement and shape are naturally within ourselves. And, *a fortiori*, the ideas of pain, colour, sound, and so forth, must be natural to us, so that our mind, on the occasion of certain bodily movements wherewith they have no likeness, may be able to make representations of them."—Descartes, *Lettres. Remarques sur un certain placard, imprimé aux Pays-Bas vers la fin de l'année 1647. Œuvres de Descartes*, ed. Cousin, t. x., pp. 94-96.

One almost might have been tempted to think that Locke's empiricism would have indicated a reaction against the idealism of Descartes. Locke, indeed, took Descartes' innate ideas to task, but he did it unskilfully. The arguments of this English philosopher miss the point; they were aimed at the innate ideas as if they were *actual* perceptions. But Descartes never maintained the innateness of our *actual* ideas, but the innateness of our *power* to form them without the effective assistance of any activity apart from the soul. Hence Locke's efforts to maintain the part of sensible experience in the formation of our cognitions were bound to result in a way that their author never intended, and, as a matter of fact, they rather confirmed than invalidated the position of the Cartesian idealist.

Moreover, on the question of the unknowableness of substances, there is no essential difference between Locke and Descartes.

According to the *Essay on the Human Understanding*, there are two sources of our ideas, *sensation* and *reflection*—the former acquainting us with sensible qualities, the latter with the operations of the soul (mind); but all mental activity is confined to establishing between the simple ideas drawn from these two sources, relations of identity or difference, of agreement or disagreement, and the human understanding cannot go beyond the perception and arrangement of these accidents. "Our specific ideas of corporal substances are nothing else but a collection of a certain number of simple ideas, considered as united in one thing."[1]

Locke even improves upon the Cartesian idealism. Descartes, indeed, had not thought of questioning the substantiality of the thinking "I." To the English philosopher the substantial reality of the soul is as doubtful as that of bodily substances. "For," he writes, "putting together the ideas of thinking and willing, or the power of moving or of quieting corporeal motion, joined to substance, of which we have no distinct idea, we have an idea of an immaterial spirit." But we have no distinct idea of a corporeal substance or of a spiritual substance. "The one is as clear and distinct an idea as the other. . . . For our idea of substance is equally obscure, or none at all, in both; it is but a *supposed I-know-not-what, to support those ideas we call 'accidents.'*"[2]

Thus Locke reduced psychology to the following terms: the sensible qualities of bodies and the operations of the soul are represented by ideas, some simple and others compound, between which the understanding establishes relations; and as the substratum of both he assumes an unknown support which he calls substance, matter, or spirit.

This unknown substratum of corporeal qualities is considered superfluous by Berkeley. This Irish philosopher does away with the substance of bodies and leaves only spirit behind. One may contradict his premises, but given his acceptance of the idealism of Descartes and Locke, one cannot dispute the inevitability of his inference. "Sensible qualities," he says,[1] "are colour, shape, movement, smell, taste, etc. . . ., *i.e.*, ideas perceived by the senses. But it is inconsistent to put the existence of ideas in anything that is not actually perfect, *for to have an idea and to perceive are one and the same thing.* Therefore the subject in which are to be found colour, form, and other sensible qualities, must know them; and hence it is quite evident that there can be no *unthinking* substance. Therefore *matter* or bodily substance does not exist: only a thinking and consequently spiritual substance can exist."

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[1] *Essay on the Human Understanding*, Book II., Ch. XXIII., § 14.

[2] *Ibid.*, Book II., Ch. XXIII., § 15.

Hume is still more radical. He does not admit of any kind of substance, going so far as to do away with "the unknown substratum of ideas" which is called soul or mind, and undertakes to set up a "psychology without a soul."

What Locke calls "ideas" is given by Hume the name of "*impressions.*" The Scotch thinker means thereby the various states of consciousness. He calls sense-impressions "impressions of sensation," sensations or perceptions and considered impressions "impressions of reflection," inclinations or volitions "affections" or "emotions." As for "*ideas,*" he regards them as weak reproductions of impressions or of reminiscences of former ideas.[2]

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[1] Berkeley, *The Principles of Human Knowledge.*

[2] "I would fain ask those philosophers, who found so much of their reasonings on the distinction of substance and accident, and imagine we have clear ideas of each,

Impressions and ideas possess attractive properties in virtue whereof associative relations are set up between them, and there is no need to assume that this is the result of any activity independent of them. The object of psychology is to investigate the progressive organization of impressions and ideas, and the laws according to which they become associated to compose the syntheses, the sum-total of which we call the conscious soul or mind.

In Hume's psychology, idealism reigns universally. To him everything that is not an idea is unknowable. Nevertheless, the idealism of Hume, like that of his predecessors, is regarded by him as a *fact*, while to Kant it is the constituent *law* of the human mind.

Hume reached idealism by way of *induction*, Kant by way of *deduction*.

We saw how Descartes regarded bodily movements as only exciting causes of the soul's action, whereas he assigned to the soul a natural capacity for taking account of the distinctive characteristics of thought.

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whether the idea of *substance* be derived from the impressions of sensations or reflection? If it be conveyed to us by our senses, I ask, which of them; and after what manner? If it be perceived by the eyes, it must be a colour; if by the ears, a sound; if by the palate, a taste; and so of the other senses. But I believe none will assert, that substance is either a colour, sound or taste. The idea of substance must therefore be derived from an impression of reflection, if it really exist. But the impressions of reflection resolve themselves into our passions and emotions; none of which can possibly represent a substance. We have therefore no idea of substance, distinct from that of a collection of particular qualities, nor have we any other meaning when we talk or reason concerning it."—Hume, *Treatise on Human Nature*, Part I., § 6.

Kant took back to its starting-point this idea of the essential rôle of the *subject-soul* in the production of knowledge.

When passive impressions on the sensibility occur, the thinking subject has, according to him, its own mode of reacting; to the *data* of experience it brings its own formal elements (intuitions, categories, ideas), and from the synthesis of these forms *a priori* with the sensible impressions results the special character of cognitive acts. The notions of substance and of cause are the effects of similar syntheses of the categories of thought with phenomena; they are, then, *fabricamenta mentis, mental fictions* whereof we cannot assert the reality. If even corporal *noumena* escape our apprehension, far more do spiritual substances and the reality of the Divine Being transcend it, being beyond the scope of human knowledge.

Thus is idealism inductively and deductively established both by way of analysis and by way of synthesis; it is both the fact and the law of human knowledge. Henceforward it rules supreme in philosophic teaching. It is called phenomenalism in France, agnosticism in England and the United States, but underlying both names is a fundamentally negative doctrine concerning the root-incapacity of the human mind to go beyond its subjective ideas.

Idealism appears in the eyes of its professors, not as a philosophical system which is as good as or superior to any other, but as the supreme conquest of the mind. Many of our contemporaries are persuaded that Kant has set up the columns of Hercules of man's mind. Moreover, for them metaphysics, the last word of philosophy, has lost its original meaning. It no longer designates the knowledge of that which, either positively or negatively, transcends experience, but the science of the limitations of human knowledge, according to the words of the Königsberg philosopher: "The main and perhaps the only use of the philosophy of Pure Reason is, after all, entirely negative; for it serves, not as an instrument for the increase of knowledge, but as a discipline for establishing its boundaries. Instead of discovering truths, it modestly confines itself to the prevention of errors."

2. *The Origin of the Positivist Character of Idealism.*—We have just seen the genesis of contemporary idealism. It may be summed up in the statement that the soul draws its thoughts on corporal things from itself, on the occurrence of the motions of animal spirits (Descartes); in the statement that the soul knows only simple ideas and collections of simple ideas drawn, some from sensations, others from reflection (Locke); in the statement that all the soul's cognitions and that the soul itself are results of associations of psychological elements, kinds of atoms of psychological chemistry, according to the attractive affinities of similarity, coexistence, and succession (Hume); lastly, in the denial of the knowableness of all that goes beyond phenomena (Kant).

Is idealism, thus understood, materialistic or spiritualistic? It is neither the one nor the other, of necessity.

In the case of Descartes, idealism is clearly spiritualistic; it was not materialistic with Locke, since he recognized two sources of cognitions, sensation and reflection, and mind. It was spiritualistic to excess with Berkeley. Lastly, it was by no means materialistic with Kant, since he inaugurated a reaction against the empiricism of Hume and defended the necessity and universality of principles, especially of the principle of causality, against the Scottish philosopher.

How is it, then, that idealism, in France, England, and the United States as well as in Germany, has generally become *positivist?* By *positivism* is meant, according to John Stuart Mill, that system of philosophy which only admits of one way of thinking, *i.e.*, of knowing; the way of thinking positively, *i.e.*, the way of knowing by the senses.

Logically, there is no necessary connection between idealism and positivism. Assume that I could know nothing but my own *ideas*, there would remain the question of whence and what these ideas may be, whether they are material or spiritual, whether they come solely from the senses, or partly from the senses, partly from some suprasensible source.

Historically, we have just seen that there is no filiation from idealism to positivism. How is it, then, that idealists have generally given their philosophy a positivist character?

This truly curious phenomenon arises from two causes, one historical, the other scientific.

After Descartes, a current of sensationalism ran side by side with idealism, and it logically ended in materialism. This was the primary cause of the influx of positivism into the psychology of the nineteenth century. With this we shall deal first of all.

Afterwards, in Article II., we shall consider the development of Cartesian Mechanism, and therein we shall recognize the second cause of the positivist character of modern idealism.

Before broaching this subject we will make a rapid sketch of the influence exercised by sensationalism on the positivist demeanour of modern psychology.

By *sensationalism* is meant that ideological theory which finds in sensation the one *source* of all knowledge.

Sensationalism is not necessarily materialistic, for one may admit that sensation is the one source of our cognitions, and nevertheless maintain that an immaterial principle exists, the function of which is to draw from that source the elements whose elaboration produces what we know.

Condillac teaches, in his *Traité des sensations* (p. 11), that "judgement, reflection, the emotions, in a word all the operations of the soul, are only different transformations of sensation." Sensation, then, according to him, is the sole source of all our perceptions; but sensation, if it is to become idea, must undergo a transformation, which the immaterial nature of the soul alone can effect. Although the immateriality of the soul is not repudiated, but rather asserted by the father of French sensationalism, it is nevertheless easy to see that he has gravely compromised it. In fact, if the goal of knowledge does not go beyond the region of sensibility, why must the knowing subject be more than a purely sensible agent?

Locke, more reasonably and carefully than Condillac, reserved to the soul a place that required its immateriality. By the side of sensations, in fact, he kept a place for "reflection," *i.e.*, for the knowledge of the operations of the soul, and he referred this knowledge to an immaterial mind. But, even in such conditions, the immateriality of the soul was getting to be doubtful. Locke's emphasis in distinguishing his position from that of Cartesian spiritualism and in bringing into prominence, for that purpose, the preponderating part played by sensation in our mental activity; his confusion between mental representation and sense representation, either of which he indifferently named *idea* or *thought;* lastly, the hypothesis he loved to dwell on of a matter which acquired the power of thinking: all this singularly attenuated the respective characteristics of sensation and thought, of matter and mind, and facilitated the invasion of the sphere of psychology by materialism.

Hume showed more decision. He clearly laid down the identity of the phenomenon of consciousness, called an *impression* or *idea*, with the nervous process of the body. "If we regard the matter *a priori*," says he, "we must affirm that anything is capable of anything. . . . From the fact that we do not understand the *how* of causal operation, it does not follow that we have any right to deny it. Do we understand the law of attraction? Nevertheless, we admit it.

"But, just as one movement follows another, so do changes of thought always follow certain changes in the movements of matter. Hence, we rightly regard the material changes that precede our thoughts as the *cause* of thoughts, for a cause is nothing but an antecedent that is constant."

But a fact that is caused by a material change is of the same material order as the fact itself. Hence it is natural to identify the conscious fact or thought with a nervous change which is itself a material form of existence.

Such was the favourable medium provided for the mechanical theory of Descartes in England and France.

On parallel lines with the evolution of the exclusively spiritualistic theory the mechanical conception of nature will henceforth develop in turn, and definitely stamp idealism with a positivist character.

We shall examine ***Mechanism*** first of all as a ***philosophical conception***, and then as a ***scientific theory***.

In order to solve the problem of the union of the soul with the body in such a way as not to compromise the distinction which he had set up between the two substances, Descartes placed in an infinitesimal part of the nervous substance a spiritual soul which had to set in motion, by means of the animal spirits, the nerves and muscles of the body, and thus to enter into relation with both the body and the external world.

In reality, since the soul has the power of forming its own ideas; since it has not to receive any impression of them from outside, there is no need of setting up a distinction between soul and body and of making them meet together in the pineal gland in order to explain the origin of our ideas. From this point of view, the union of soul and body is useless.

The only reason for affirming the presence of an immaterial soul in the pineal gland is the need of explaining the movements of the body which we are conscious that we originate. The last stronghold of the Cartesian spiritualism, when confronted with the mechanical conception of nature, is here.

But is there any real need of an immaterial soul for this purpose? May it not be possible to replace the immaterial soul with the substance of the brain itself, or, in more general terms, by a mechanical agent? This hypothesis of the applicability of mechanical materialism to the control of the movements of the body has, apparently, the twofold advantage of *unity* and *simplicity*.

The human mind is naturally inclined to *unity*. Why should we wonder at it? Its function is to make abstractions and to generalize. But to generalize is to perceive the applicability of *one* predicate to an increasing number of subjects.

Descartes had already applied the predicates "extension," "shape," "movement," to all created beings, the soul only excepted. He had denied that there was any real difference between the corporeal phenomena of mineral substances, the vital phenomena of plants, and the phenomena of animal life. He had therefore affirmed the substantial identity of substances as diverse in appearance as the mineral, vegetable, and animal worlds, including the human body. What, then, was more natural than to do away with the diversity between the phenomena of thought and the other phenomena of nature, and therefore to affirm the fundamental identity of bodies with the thinking soul? Was not this the naturally expected climax of the synthesis of the universe?

Why did Descartes "tack" a soul on to the human body? asks La Mettrie, who was quite ready to label himself a Cartesian. For extrinsic reasons, he replies, not to offend the clergy. For, if we see things as they are, the affirmation of an immaterial human soul is not justified, he says, in the Cartesian psychology. If we admit a mechanism of plants and animals, why not also a mechanism of mankind?

Doubtless the induction made by La Mettrie is not logical. There are in favour of the immateriality of the thinking soul reasons intrinsically different from those that are on the side of the irreducibility of the plant or the animal to simple pieces of mechanism. But it is none the less true that Descartes overturned all the barriers against the invasion of mechanical materialism except one, and thereby prepared men's minds to overcome this last obstacle.

Its *simplicity* is a second advantage of the mechanical hypothesis. The substitution of a material agent for the immaterial soul of Descartes enables one to escape from many of the difficulties which the French philosopher's principles made unanswerable.

Descartes placed the immaterial soul in the pineal gland in order to give it thence control over man's bodily movements. But the soul's *mode of existence* in the substance of the brain—seeing that the soul's nature is thinking—is self-contradictory. Thought, as such, is not attached to any place, hence a thinking substance, as such, cannot be localized. Thus it was that Descartes told the Princess Elizabeth that we must think of the soul as endowed with a different kind of extension from that of matter, seeing that the latter excludes from where it is found all other extended matter, whereas the former does not exclude it at all.

Likewise the thinking soul's *mode of operation* for the production of bodily movements involves contradiction. In fact, according to the very principles of Cartesian mechanics, movement alone—so far as it is a secondary cause—can give rise to movement. But, by definition, movement is a change in the position of something movable or in that of its parts—*i.e.*, it is a change of shape. But a change of shape is only possible in an extended body. Hence, only an extended body is able to produce a movement, and consequently the soul, whose attribute excludes extension, cannot produce any movement.

Besides, the sum of movement in the universe is invariable. But, of two things one: either the setting in motion of man's body by the soul must be due to a production of movement without equivalent loss, and then the sum of movement in the universe would vary; or else the setting in motion would be due to a production of movement with some equivalent loss of movement in the mover, and then the latter—now assumed to be able to lose in movement—could only be material. Therefore, unless we overturn this fundamental principle of Descartes' physics, the constancy of the sum of the world's movement, we must deny the immateriality of man's soul.

Doubtless attempts will be made to escape from this last inference. Clerselier, who was a Cartesian, made them. It is true, he said, that a movement must be created in order to set up a bodily movement; but, strictly speaking, the soul has not to start bodily movements, but only to control them.

Even if it be assumed, though it would not be correct to do so, that the power of the soul over bodily movements were exclusively directive, Clerselier's answer would afford no real way out. In fact, in virtue of the law of inertia, every moving body inevitably keeps moving in a right line as long as no contrary force changes its direction. Hence, to change the direction of the thing moved, as well as to make it pass from rest to motion, some mechanical act is required. Hence, the soul can only direct the movements of the body, if it can produce mechanical effects. Therefore the dilemma returns anon—either the soul produces mechanical energy without consuming any, and then the sum of the world's energies increases; or else, it consumes the same amount as it produces, and then its nature is not immaterial, but mechanical.[1]

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[1] We need not put forward any solution of this difficulty, since, just now, our sole aim is to follow up the evolution of Cartesian ideas.

Let us now sum up this philosophical explanation of the mechanical theory in conclusion:

Sensationalism prepared men's minds for the identification of the phenomena of the nervous system with the phenomena of consciousness. Hume claimed that this identification presented no impossibilities in itself, but on the contrary that it was required by the constant conjunction of nervous changes with our thoughts.

But now, on the other hand, from the desire for unity and in order to escape the difficulties raised by the mode in which it was present, and the operation of the immaterial soul in the pineal gland, arose a tendency to substitute for the soul a substance able to fill a place and to be a source of mechanical energies.

Thus the thinking soul gets lowered by nature to material conditions, and becomes therefore subject to mechanical laws. But consciousness protests against the brutal negations of materialism; hence the endeavour to shroud in voluntary ignorance the problem of the nature of thought and of the soul that thinks. From this endeavour arises positivism.

Hitherto we have considered the Mechanism from the philosophic point of view. Confined by Descartes to vegetable and animal substances, it ended by being extended by his followers to human nature itself. Thus understood, the mechanical theory could cite in its favour its unity of conception; and by its simplicity it got rid of insoluble difficulties arising from the influence over bodily movements attributed to an immaterial soul by

Descartes' psychology, but after all it remained merely a philosophic *hypothesis*.

Nor from the narrower point of view of the science of physics did Cartesian Mechanism rise above the rank of mere hypothesis. Indeed, the reduction of all the phenomena of material nature to movement was hardly supported by Descartes by any attempt at observation. His affirmation of the conservation of the world's sum-total of movement was merely a deduction drawn from the immutability of the divine Being.

Therefore, philosophically and scientifically, the mechanical theory until the time of Descartes was only an hypothesis. It had no experimental foundation. Will it not be provided with this by the advancement of scientific knowledge

The mechanical theory may be reduced to these two propositions: The phenomena of the material world, if not all the phenomena of the universe, are modes of motion. In nature there is nothing but efficient causes; there are no final causes.

Now, these two propositions have apparently found an experimental foundation in the wonderful scientific progress made in the last hundred years.

First of all, physiology reduces the seemingly most mysterious phenomena of life to physico-chemical manifestations, enabling the mechanical interpretation hitherto applied to things inorganic to be extended to the domain of life. Next, Lavoisier demonstrates experimentally the conservation of ponderable matter amidst all chemical reactions. "Nothing is created, nothing perishes." Thermodynamics shows that heat is not an indestructible and unchangeable fluid, as Newton supposed, but that it may be consumed in producing energy, and generated by the living power of a body in motion. One can fix the amount of heat required to produce a given unit of power, and inversely, the amount of mechanical energy to be expended to produce a given unit of heat, and thus a ratio between heat and mechanical energy is established. Mayer, Clausius, Joule, and Helmholtz have found out approximately, indeed, the mechanical equivalents of heat, or the heat-equivalents of power; Weber and Helmholtz the mechanical equivalents of electricity. Thermodynamics and electrodynamics, then, lead to the following general conclusion: If we mean by the term *energy*, living power, horse-power, heat, electricity, and, to speak more generally, all the mechanical, physical, and chemical forces of nature, we are justified by experiment in stating that all corporal energies have a mechanical equivalent. If they replace one another, that is done by a law of equivalence. Therefore, if we look at these energies as a whole, abstracting any other force outside their sphere, we may say that the play of nature's forces does not impair the sum-total of energy of the whole —in a word, that the sum of the world's energies is invariable. And then, joining together Lavoisier's principle with Mayer's, we may say: "The sum of the world's energies is invariable, as is the sum of the mass of the particles of matter that compose it."

Apparently, this is all that is required to convince us that the mechanical theory rests upon an experimental basis, and that its primary doctrine has been established so far as to be a scientific theory. Can science also be invoked for the negation of final causes?

Teleology had become discredited by the jibes of Bacon as well as by the physical doctrines of Descartes. According to the English empiricist, experiment is the only way of getting any knowledge of nature, and experiment reaches efficient causes only. The search for final causes is, then, simply idle play, quite unworthy of science.

But, assuming that the study of final causes must be excluded from physics, ought it not to find a place in biological science? Do not living organisms and the instincts of animals demonstrate the need of final causes?

Charles Darwin tried, as we know, to give a mechanical explanation of the origin of species and of animal instinct. According to him, the environment modifies the organs accidentally; the organ generates function, function in turn reacts upon the organ and upon the whole organism, so that the formation and transformation of all organisms depend exclusively upon accidental influences, due to chance.

Thus, too, according to Darwin, action generates habit, and habit instinct, and most naturalists came to accept Darwinism.

Then the prestige belonging to the discoveries of thermodynamics and electrodynamics and to the original work of Darwin gave the two essential dogmas of physical and biological mechanicism at least an appearance of being scientific theory.

Cartesian physics banished final causes from the domain of inorganic matter, and reduced the study of the latter to a chapter in mechanics. The general tendency of Darwin's work was to banish them from the domain of life, thus making it easy to extend the *positivist* conception of nature to the living beings of both kingdoms. Could not this conception then be universalized by reducing the facts of history and sociology to natural phenomena which would be brought under the general laws of physical science?

The universal positivist conception of nature owed its origin to Auguste Comte. Haunted by general ideas of the progressive development of mankind, Saint Simon's old secretary pictured the history of man's mind as a progress from a *theological* to a *metaphysical* state, and from the latter to an exclusively scientific or *positive* state.

In the beginning, according to him, man sees nothing but extranatural causes of phenomena. At a single leap man's mind passes from the roughly-perceived fact to the supernatural cause, which effects and controls it by direct and continuous action. The ideal of the theological system is to explain things by the operation of a single being who is adorned with the name of Providence.

Then, by a modification which is merely of a secondary character, this providential God is changed into a number of abstract powers capable of producing phenomena, and thus we come to the *metaphysical* stage. But metaphysics no more explains anything than does theology. Both aim at the knowledge of causes which are beyond our reach.

and they replace the positive observations to which our nature bids us to submit, by wild leaps in the region of fiction or abstraction.

"Lastly, in the positive stage, man's mind recognizes that it is impossible to obtain absolute ideas, and abandons its quest of the origin and end of the universe and its desire to know the inner causes of phenomena to devote itself solely to the discovery of their true laws, that is to say, their invariable relations of succession and similitude, by the combined use of reason and observation. The explanation of facts, thus reduced to its true terms, is henceforward merely the connection established between particular phenomena and a few general facts, the number of which the progress of science tends constantly to reduce."[1]

Auguste Comte is persuaded that this law of evolution which he applies to history is verified in the life of each individual. Each of us is "a *theologian* in his childhood, a *metaphysician* in his youth, a *physicist* in his manhood."[2] Man's mind to-day has reached the fulness of the positive stage, the final one beyond which there is nothing better to be hoped for.

In fact, the theories of Laplace and Newton show us the succession and uniformity of all the phenomena of astronomy and physics: "the Newtonian law of gravitation proves to us, on the one hand, the immense variety of astronomical data as being one and the same thing looked at from various points of view, the constant tendency of all molecules towards one another in direct proportion to their mass, and inversely as the squares of their distances; while, on the other hand, this universal law is presented to us as the simple extension of a phenomenon with which we are thoroughly familiar, and therefore regard as perfectly well known—*i.e.*, the heaviness of bodies on the face of the earth."[1] Furthermore, one gets a glimpse of the time when chemistry and physiology will connect their subject-matter with the other branches of knowledge. Then there will be one thing left to seek. After having established celestial and terrestrial physics, whether mechanical or chemical, and organic physics, whether vegetable or animal, there will remain the establishment of the physics of sociology. "This is the only lacuna to be filled in order to put the crown upon positive philosophy."[2]

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[1] *Cours de philosophie positive*, première leçon, pp. 4, 5.
[2] *Ibid.*, p. 7.

Comte flatters himself with the hope of filling up this lacuna, thus universalizing the positive conception of knowledge. "Such," he says, "is the first object of the course I am inaugurating, such is its special aim." Mark well, however, that he does not think that it is the mission of positive philosophy to form such a universal synthesis as was afterwards attempted by Herbert Spencer, a synthesis in which "all phenomena are regarded as the effects of a single principle, as subject to a single law. . . . I believe that the mental resources of man are too weak, and the universe too complicated for such scientific perfection achievement ever to be attained by us. . . . In any case, I think it is evident that, having regard to our present state of knowledge, we are far off the time when any such attempt can be reasonably expected."[1]

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[1] *Cours de philosophie positive*, **première leçon, pp. 14, 15.**

[2] *Ibid.*, p. 22.

Comte's ambition did not go beyond observed facts. From this point of view, his choice of the term positive *philosophy* to indicate the final end of his labours is not a happy one. This word is too apt to suggest the thought of a knowledge other than that of positive science. But, according to Comte, philosophy is only physics pushed to the ultimate extreme of its generalization. "If we could one day hope to attain to this universal explanation"—which he has only just characterized as eminently chimerical—"it is only to be done by bringing all natural phenomena under the most general of known positive laws, the law of gravitation, which already connects all astronomical phenomena with a part of those of terrestrial physics."[2]

The first condition of the formation of the positive philosophy is the division of labour. But, however necessary this division may be, it gives rise to serious drawbacks which must be counteracted as far as possible. It is to be feared that man's mind, by dint of specialization, may get lost in the maze of such labours in detail. Hence one must have recourse to a new order of studies to prevent the dissipation of men's thoughts. But we cannot think of reverting to the antiquated idea that each human brain might claim to embrace the sum of human knowledge; that would be to make man's mind take a retrograde step.

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[1] *Cours de philosophie positive*, première leçon, p. 53.
Cours de philosophie positive, p. 54.

"The true way to get rid of the vexatious results of extreme specialization consists, on the contrary, in perfecting the division of labour. It will suffice, indeed, to make one more special science including the study of scientific generalization."[1]

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[1] "Let there be a new class of scholars, prepared by suitable training, which without giving itself up to the cultivation of any one particular branch of natural philosophy, will devote itself entirely, in considering the different positive sciences in their actual state, to determining exactly the spirit of each one of them to the discovery of their mutual relations and connections, and to summing up, as far as possible, all their special principles under a smaller number of common principles, always in conformity with the fundamental maxims of the positive method. At the same time, let there be other scholars who, before undertaking their own special studies, are fitted by training in the sum-total of positive sciences, to take immediate advantage of the light shed by these scholars who were devoted to the study of generalizations, and mutually to correct one another's conclusions, a state of things which the scholars of to-day are visibly coming to realize more and more. These two great conditions once fulfilled, and it is plain that they can be, the division of labour in the sciences will be pushed without risk as far as the advance in the various branches of knowledge requires. When there is this distinct class, incessantly controlled by all the others, having as its special and permanent function the connection of each new and particular discovery with the general system, there will be no reason to fear that a too great attention to detail may hinder a proper consideration of the whole. In a word, the modern organization of the learned world will then be completely established, and will only need to advance indefinitely, always retaining the same character.

"Thus to make the study of scientific generalizations a distinct department of the general intellectual work, is simply an extension of the application of the same principle of division which has been used to separate the various special departments; for, so long as the different positive sciences were but little developed, their mutual relations could not possess enough importance to give rise, at least to any

The new rôle of philosophy is thus clearly defined. Natural phenomena are accessible to man's mind, and nothing else is. But natural phenomena are those that depend on matter and force, and we know no other sort of phenomena.[1] Hence positive science deals exclusively with the phenomena of matter and with the laws that govern them.[2] And positive philosophy can be nothing but the discovery of the highest scientific generalizations.

Hence there can no longer be any question of final or efficient causes, of the nature of things, and of their properties. "All sciences in the positive

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permanent extent, to a particular class of work, and at the same time the need of this new study was much less urgent. But to-day, each of the sciences has taken a sufficient range of its own for their mutual relations to permit continued attention, at the same time that this new order of studies is becoming indispensable to prevent the dissipation of human thought."—*Cours de philosophie positive*, pp. 30, 31.

[1] "How are we to define human knowledge? As the study of forces belonging to matter, and of the conditions or laws of such forces. We know only matter and its forces or properties, we know neither matter without forces or properties; nor forces or properties without matter. When we have discovered a general occurrence in one of these forces or properties, we say that we are in possession of a law, and immediately this law becomes a mental power and a material power for us; a mental power, because in our mind it becomes a logical instrument; a material power, because in our hands it becomes a means for the control of natural forces. . . . In history, the matter or substratum is the human race, divided up into societies; force is represented by the aptitudes inherent in societies, the foundation of which lies in this condition, that scientific ideas can be accumulated. So long as that is not acknowledged, history does not seem to be a natural phenomenon; its substratum, which is the human race, is known, but its force, which causes it to evolve, is unknown."—Littré, *Auguste, Comte et la philosophie positive*, p. 42, (Paris, Hachette, 1864).

[2] *Cours de philosophie positive*, p. 43.

stage," writes Littré, "abandon the search for the essence of things and their properties, first and final causes—*i.e.*, what metaphysics terms *the absolute*. Positive philosophy, which is their daughter, abandons these things as they do. The philosophers of the past would have regarded as a chimera any philosophy which did not deal at all with the absolute; to-day, we should regard, and we begin to regard, as a chimera any philosophy that is not entirely devoted to the relative. Such is the immense mental revolution wrought by M. Comte."

The sole means of acquiring knowledge is, moreover, external observation. "Direct observation of the mind by itself is pure illusion."[1] The reason why the subject cannot observe itself is that the subject—Comte postulates this *a priori*—can only be an organ of the body. But a bodily organ cannot know itself. "The thinker cannot divide himself into two parts, one of which reasons, while the other looks on at its reasoning. The observing and the observed organ being, in this case, identical, how could observation take place?"[2]

Thus Comte's philosophy, in all its clearness and breadth, is plainly the positivist conception now everywhere prevalent along with idealism in contemporary philosophies.

What are these philosophies? How do they fuse together Idealism, Mechanism, and Positivism?

To answer this question, let us examine the works of the masters of contemporary psychology and look at the present state of philosophical investigation.

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[1] *Cours de philosophie positive*, p. 35.

[2] *Ibid.*, p. 36.

CHAPTER III

CONTEMPORARY PSYCHOLOGY

I

THE INSUFFICIENCY OF POSITIVIST IDEALISM FOR THE SOLUTION OF THE FUNDAMENTAL PROBLEMS OF PSYCHOLOGY

VAIN are the attempts made to persuade us that the search for the absolute is a chimera. Man's consciousness invincibly affirms the existence of the noumenon beyond the phenomenon, a mover prior to the movement, of the thinking Ego beyond the transitory occurrence of thought.

The *physical* and the *mental* stand in opposition to one another beneath the mind's eye. Vain are the endeavours to identify them, and vain is the affirmation that nerve-change and conscious act are the two aspects—one external, the other internal—of one and the same phenomenon, expressible in the terms of mechanics. Consciousness refuses to accept the strained identification and repudiates such interpretations.

The properties of movement are velocity and direction, the property of thought is being representative; is there nothing in common between the former and the latter?

Do we not recognize the essentially irreducible character of the facts of consciousness when we make consciousness to be the inner side of a phenomenon which, seen from without, is a nerve phenomenon? For, apparently, it is not a matter of indifference whether a mechanical phenomenon, either of physics or of chemistry, has or has not an inside and an outside, an inner aspect and an outer aspect. Such and such a reaction occurring in a laboratory of biological chemistry depends exclusively upon outward observation; the same reaction occurring in the nervous system arouses a conscious representation. Is it not perfectly plain that in the second case there is something of *another kind* than there was in the first, a hyperphysical, hypermechanical property, which we do well to name a *conscious*, *psychic*, or *mental* element?

But, it may be asked, could one not suppose that *all* physical phenomena have a mental aspect? Then the mental aspect would be essential and universal, always parallel to the physical aspect, as the convex is always the double of the concave. Thus, says Fouillée, we avoid the miraculous theatrical effect whereby feeling suddenly "appears" amongst the results of physical evolution.

This is a vain way out of the difficulty. The arbitrary assumption that the mental is to be found everywhere does not explain why nor how it occurs anywhere. If the twofold aspect cannot be reduced to mechanical unity in the case of animals and men, still less is it reducible to unity in the whole world of natural beings.

Furthermore, above the general phenomenon of consciousness common to man and animals, which is improperly called "consciousness" or "thought," there are *consciousness* and *thought* properly thus named which, by reason of their abstract character, dominate all concrete existence, all exclusive localization in space, all registration in time. But a mechanical phenomenon can only be the manner of existence of some concrete thing moved, definitely belonging to a given place, manifesting itself at a given moment of time. Therefore thought cannot be identified with a mechanical phenomenon.

Physical events are adequately determined by their material antecedents. But consciousness testifies that in us there take place acts the material antecedents of which are not the adequately determining reason. These acts mankind calls *free.* Hence the free act is not of the same nature as a mechanical phenomenon.

We may recall Hume's objection: that we do not understand how the earth's attraction causes the fall of bodies, but the fact is there, and we accept it. Why should not the body be the cause of thought as well as of motion?

Besides, thought is always accompanied by some nervous change, and causation merely means constant conjunction. Is it not, therefore, reasonable to think and right to say that nervous change is the cause of thought?

It may be replied that the inner nature of attraction is doubtless unknown to us, and we cannot surely tell how the earth attracts bodies and makes them fall. Newton, too, spoke of the phenomenon of the fall of bodies with the circumspection of a scientist who is aware of the limits of his knowledge; bodies fall, he said, *as if* the earth attracted them.

Thus, the law of gravitation expresses the conjunction of two phenomena, the falling of bodies and the presence of the earth's mass, and the dependence of the first phenomenon upon the second; it must tell us no more than that.

If we were within the mass which attracts, and were conscious of the drawing power, probably we might be able to tell somewhat more. The idea of gravitation might be put alongside with the idea of the movement of the attracted bodies, and our consciousness might decide whether they were or were not incompatible.

But we are at the centre of the reality that knows, thinks, and freely decides; we are this very reality, and observe our own perceptions, thoughts, and free decisions. We are then in a position, and have the right, to ask ourselves whether the attributes of the bodily phenomenon and those of our thought can be identified, or if they exclude one another. As we see them exclude one another, we should misunderstand the protestations of consciousness, if we concluded to affirm their identity.

The falling of bodies is one fact, the presence of the earth is another; the observer ascertains the

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overstep the statement that the two facts are in each other's presence by saying that the two phenomena are only one, a thought with mechanical attributes, or a mechanical phenomenon with thought-attributes, the mind cannot but offer an invincible resistance, on the ground of the principle of contradiction and of sufficient reason, to this identification which it deems impossible.

Hume's vaunted fact of observation does not justify his conclusion. Yes, nervous change is in constant connection with thought, but what is the nature of this connection ? Is the nerve-substance itself thought ? Is it the formal cause of the phenomenon, or is it merely a condition of thought ? More strictly speaking, is it only a partially efficient cause, insufficient unless helped by some higher principle ?

At first sight, both explanations may appear to be equally possible. But, on reflection, in thought we discover characteristics which clash with the former hypothesis. Hence the second alone can be admitted, because it alone can be harmonized with the whole of the facts.

We must reject the identification which Hume tried to establish. The essential distinction between the phenomena "of consciousness" and corporal phenomena becomes plainer and plainer in so far as Idealism and Mechanism continue their parallel evolution.

Moreover, independent minds of the highest class in science and philosophy expressly assert the insufficiency of the mechanical theory for the solution of the problems of psychology.

There is Dubois-Reymond's famous address at the general Congress of Naturalists at Leipzig in 1872:

"No arrangement," he said, "no imaginable movement of the particles of matter can help us to understand the region of consciousness. . . . What connection could one possibly imagine between determinate movements of determinate atoms in my brain and facts as primary and indefinite, though undeniable, as the following: I feel pain or pleasure; I taste sweetness, I smell the scent of a rose, I hear the sound of an organ, I see something red? It is, however, absolutely and always unthinkable that it should not be a matter of indifference to atoms of carbon, hydrogen, nitrogen, oxygen, etc. . . . whether they exist now, or have existed previously, or will exist in future, in this or that determinate condition of place or of movement. . . . Therefore, it is radically impossible to explain by any mechanical combination whatever why a chord of the octave pleases me, or why, on the contrary, touching hot iron hurts me. No thinker could tell me, in the name of 'astronomical' science forecasting the material issue in these two instances, which would be the agreeable and which the disagreeable experience. . . . That it is completely impossible to-day, and that it will always remain impossible, to understand *mental* processes by means of the mechanical action of the atoms of the brain, is a truth that requires no explanation."[1]

The scientific and philosophic thinkers of eminence in France, England, and Germany to-day, energetically protest against identifying matter and thought.

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[1] *Die Grenzen des Naturerkennens*, p. 37 (Leipzig, 1884).

"Those systems that desire to reduce everything to a set of *quantities*, and *relations* between such quantities, are chimerical," writes A. Fouillée.

"From a quantitative point of view, the world appears to be reducible to an objective combination of movements; from a qualitative point of view, to a subjective series of sensations: but *quality* cannot be the result of a mere difference in the number and position of units quantitatively equal or qualitatively null; it cannot be a simple form of quantity; rather is it quantity itself that is a kind of primary quality."[1]

Elsewhere, speaking of the endeavours of the mechanical synthesis of Herbert Spencer, the same writer remarks:

"This hypothesis explains the course of cosmic occurrences in the terms of matter—atoms, movements, forces, repulsions, attractions, etc.—up to the point where materialistic expressions fall short; then comes a mental terminology (sensations, sentiments, feelings, etc.) which is required for other explanations. Thus the philosopher is driven to begin his explanations from one point of view, and to finish with two. This is what Spencer does in his *First Principles* and in his *Biology*. Nature, which is one at the outset, becomes twofold, and takes two aspects on the appearance of animal life. How can the second aspect be accounted for? How came the purely unconscious to acquire a ray of consciousness? Does this ray fall from above, for it throws light upon the course of occurrences without in any way altering it? And how is it that necessity has thus given rise to something that is superfluous? The answer is all the more impossible, because Spencer regards consciousness as being of quite a different order and region from movement. He confesses that thought is not and never will be deduced from movement, and that we might know all present, past, and future movements in the world without being able to deduce thought from them. If this is the case, the mental cannot be *involved* in factors which, *ex hypothesi*, are entirely mechanical, nor can it be an *effect* of causes from which it cannot be proved to depend. Hence, when you find feeling 'appearing' among the results of physical evolution which was previously insensible, you are driven to perceive that the limits of your primary factors have been exceeded. You are forced to recognize something more than you supposed to be among your original factors. Spencer put amongst his first data nothing but 'molecular attractions and repulsions'; he describes the entire evolution of biology with the sole help of these terms of matter, and then, when he has once reached animal life and man, he finds something quite new—*i.e.*, feeling, or sensibility. Then he has good reason to exclaim, as Guthrie observes: 'I am better off than I expected. I thought I had nothing in hand but movement and matter, and here is mind!'"[1]

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[1] *L'évolutionnisme des idées-forces*, Lib. II., Ch. III., 1. Cf. *La liberté et le déterminisme*, 2ᵉ partie, Ch. VII.

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[1] A. Fouillée, *L'évolutionnisme des idées-forces*, p. 22 and pp. 260, 261.

Moreover, Herbert Spencer himself confesses that between nervous phenomena and psychical occurrences it is impossible to establish or even to conceive any community of nature. He devotes the opening chapter of his *Principles of Psychology* to a study of nervous phenomena, and when it is finished, this is how he writes:

"There lies before us a class of facts absolutely without any perceptible or conceivable community of nature with the facts that have occupied us. The truths here to be set down are truths of which the very elements are unknown to physical science. Objective observation and analysis fail us, and subjective observation and analysis supplement them."[1]

An original thinker, whose reputation has received a tardy appreciation from the pioneers of the spiritualistic renaissance, M. Durand de Gros, for half a century has devoted all his scientific and philosophic energies to combating the professed materialism of French medical scientists.

Must one take sides, he writes, with the favourite solution adopted by most scientists and medical men, by regarding life as merely a mechanical result, reducing its functions to the play of its various organs, thinking thus by successive simplifications to resolve psychology into physiology, and the latter into chemistry or physics, and these again into simple changes in space, into movement and extension?

A strange answer indeed, for it consists in misunderstanding the question at issue. Is it really life and mind which are thus reduced to chemical or mechanical phenomena? No, these are never any more than the material concomitants. And then, by a peculiar aberration, one gets to confound the subjective with the objective, to overlook "a principle which is as clear as daylight, that every sensation presupposes a feeling subject, a form of consciousness." In no way "can the essential agent of thought, the Ego, be identified with some finite extension, some series of points, with a body, with matter."[1]

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[1] *Principles of Psychology*, Part I., Ch. VI., § 41.

When W. Wundt draws up the general conclusions of his *Physiological Psychology*, he passes this severe sentence upon materialism:

"Materialism regards what is psychical as a *function* or *property* of organized matter, just like any other physiological function, the contraction of a muscle, the generation of heat, etc. In all of them there is nothing but the movements of material elements.

"But *the starting-point and the conclusions of this theory are equally defective*."[2]

We will not follow out in detail the consequences of Wundt's line of thought, but of his criticism, as of that of Dubois-Reymond and of Fouillée, we will note the conclusion, that the mechanical materialist cannot supply any solution of the essential problems of psychology.

Deep within them thinkers feel that we shall have to come back to a philosophy wide enough to find a place for the soul. What is this philosophy to be ?

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[1] Durand de Gros, *Essais de physiologie philosophique*, p. 116.

[2] W. Wundt, *Grundzüge der physiologischen Psychologie*, II., p. 532 (Leipzig, 1887).

This leads us to speak of the philosophy of Herbert Spencer, of A. Fouillée, and of W. Wundt.

II

Masters of Contemporary Psychology

Herbert Spencer

Herbert Spencer[1] is an astounding man.

He assimilated everything that our time has brought forth in the domain of physical, chemical, biological, moral, and economic science. He knew mathematics and mechanics. He followed up the genesis and development of public, social, and religious institutions amongst the various races of mankind. He was *au courant* with philology, literature, and art, and took a close interest in the economics and politics of his own country. The knowledge accumulated in his *First Principles* (1862), *Principles of Biology* (1864-1867), *Principles of Psychology* (1855), *Principles of Sociology* (1876-1896), *Principles of Ethics* (1879-1893), and in the vast collections of *Ritual, Political, and Ecclesiastical Institutions* (1879-1885), published under his editorship, borders on the prodigious. And when we speak of "accumulated knowledge" in all the volumes that make up his *System of Synthetic Philosophy*, do not suppose we have any intention of depreciating him. The scientific knowledge of this English man of science is neither superficial nor incoherent; it is abundant and closely knit, but arranged in order with steady continuity of thought, and it provides the prolific author at the proper moment with unsuspected comparisons and striking analogies.

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[1] Died at Brighton, December 8, 1903, aged 83.

Nevertheless, Spencer is not a scientist in the specialist sense. His name is linked with no discovery. He is not a geologist like Lyell, nor a botanist or zoologist like Darwin, nor a physiologist like Huxley; but he assimilates the knowledge which he has acquired with extraordinary facility, without any anxiety to further its progress. He is rather eclectic than original.[1]

His dominating idea is neither the fact nor the idea considered apart, but their adaptation to a system, their architectural arrangement. In his youth he dreamt of a synthesis of the cosmos fitted to the present state of scientific knowledge, of a new "synthetic philosophy."

By nature he was predisposed for the part he has played in science. By temperament he is a man of peace. The British impassiveness of his countenance reflects a desire for unity, which calls forth the following fine and benignant utterance to be found on the first page of his *First Principles*: "We too often forget that not only is there 'a soul of goodness in things evil,' but very generally, also, a soul of truth in things erroneous."

Herbert Spencer's philosophy is an original coordination of all the ideas circulating in the nineteenth century, from the time of the idealism of Hume and Kant down to the pantheism of Hegel, with the mechanical tendencies started by Descartes, the positivist misgivings of Comte, and the evolutionist aspirations of Charles Darwin.

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[1] After a new examination, we think we must maintain the above estimate despite the observations to the contrary addressed to us by the English scientist in 1898 in a letter, written in a very kindly spirit, on the subject of the first edition of this book.

Herbert Spencer begins with the most absolute idealism.

"The first step in a metaphysical argument, rightly carried on, must be an examination of propositions for the purpose of ascertaining what character is common to those which we call unquestionably true, and is implied by asserting their unquestionable truth. Further, to carry on this inquiry legitimately, we must restrict our analysis rigorously to states of consciousness considered in their relations to one another; wholly ignoring anything beyond consciousness to which these states and their relations may be supposed to refer."[1]

To Spencer, idealism is represented by two masters—Hume and Kant. Kant's idealism is based upon subjective mental forms, the intuitions of space and time, and the act of cognition essentially implies a power of reaction in the subject to adapt these subjective forms to the impressions provided by our sensations.

Hume attributes to the mind neither *a priori* forms of thought, nor any kind of active power. The thinking subject has impressions, and these are organized according to their similarities or differences, their priority or succession, and the mind itself is but the result of this progressive and automatic organization.

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[1] *Essays*, Vol. II., p. 204. Mill *versus* Hamilton—"The Test of Truth."

No one has demonstrated the inanity of the Kantian forms of space and time better than Spencer. "The proposition on which the Kantian doctrine proceeds, that every sensation caused by an object is given in an intuition which has Space for its form, is not true. . . . He (Kant) says: 'We never can imagine or make a representation to ourselves of the non-existence of space, though we may easily enough think that no objects are found in it.' Now this proposition may be disputed. . . .

"The Space which, as he (Kant) says, remains after we have conceived all things to disappear, is the Space in which they were *imagined*—the ideal Space in which they were *represented*, and not the real Space in which they were *presented*. The Space said to survive its contents is the form in which *reintuition* takes place; not the form in which *intuition* takes place. Kant says that *sensation* (mark the word) produced by an object is the matter of intuition, and that the Space in which we perceive this matter is the form of intuition. To prove this he turns from the Space known through our open eyes, and in which the said intuition occurs, to the Space known when our eyes are closed, and in which the reintuition or imagination of things occurs; and, having alleged that this ideal Space survives its contents, and therefore must be a form, leaves it to be inferred that the real Space has been shown to be a form which survives its contents. The Space we are conscious of in actual perception stands on just the same footing with the objects perceived: neither of them can be suppressed from consciousness. So that if survival of its contents is the test by which 'a form' is distinguished, the Space in which intuitions are given is not a form.

"Still more obvious is a parallel criticism on the parallel reason given for asserting that Time is an *a priori* form of intuition."[1]

According to Spencer the mental forms of Space and Time are not primary but derived forms. The only true "form," either of the intuition, the understanding, or the reason, is the consciousness of likeness or unlikeness; and it is common to all the acts of the intelligence whatever. "The so-called mental forms, Time and Space, are the B of our alphabet; the A of our alphabet, by which the B becomes possible, is the consciousness of likeness and unlikeness; the C, D, E, F, etc.—the intuitions and conceptions presented and represented in Time and Space—are directly dependent on this consciousness of likeness and unlikeness, as well as indirectly dependent on it, through the derivative forms of time and space."[2]

With Kant, there is a doubt as to the nature of the mental forms called respectively intuitions, categories, ideas; the fact that some are attributed to the sensibility, others to the understanding, and the last to the reason, suggests that they belong respectively to the sensible and to the suprasensible order. But with Spencer, doubt is no longer possible. The primary form of likeness and unlikeness is common to all mental—*i.e.*, cognitive—acts whatsoever; so that, as to the nature of the psychological factor of knowledge, Spencer joins hands with Hume, and with the latter proclaims that the element of consciousness belongs to the sensible order, and is to be identified with nervous phenomena To both psychology is but the reverse side of physiology.

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[1] *Principles of Psychology*, § 399.

[2] *Ibid.*

But if Spencer agrees with Hume as to the *nature* of acts of consciousness, does he also agree with him about their exclusively experimental *origin?* Does he not appear to admit, along with Kant, some transcendental element, an *a priori* form of likeness and unlikeness?

Kant and Hume are both right, and both wrong, answers Spencer. The elementary forms of consciousness are *a priori* to the *individual*, for they are given him along with his cerebral structure, but they are *a posteriori* to the *race*, for the cerebral structure of the individual of to-day is due to the experience of his ancestors and to a long biological evolution.[1]

Subjectivist idealism and sensationalist empiricism, or, as Spencer would say, the transcendental hypothesis and the experimental hypothesis, thus come to be reconciled on the ground of *evolution*.

Evolution! The word is Herbert Spencer's. From the year 1852—that is to say, seven years before the issue of the *Origin of Species* by Charles Darwin—this English philosopher conceived his "development hypothesis," according to which "vegetable and animal species arose from continual changes arising from changes in their circumstances." The work of Darwin consisted in research for the *determinate* causes of specific transformations in organisms. We all know the learned naturalist's appeal to the power of "natural selection." An unlucky expression, writes Herbert Spencer, for it "connotes a *conscious process*, and so involves a tacit personalization of nature. By tacitly personalizing that aggregate of surrounding agencies which we call 'nature,' it introduces vaguely the idea that nature may select as a human breeder selects—can select and increase a particular quality; which is true only under certain conditions. Further, it raises the thought of choice—suggests the notion that nature may or may not operate in the alleged way.

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[1] This distinction has been clearly brought out by St. George Mivart, *Essays and Criticisms*, II., p. 130.

"It was partly the consciousness that wrong ideas are called up in these ways, which led me, when writing the *Principles of Biology*, to substitute the phrase 'survival of the fittest.'"[1]

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[1] "It has become apparent that the abstract formula expressing this transformation in all living things, also expresses the transformation which is, and has been, in progress everywhere. The Solar System in passing from its primitive state to its present state has exemplified it; and if we accept Lord Kelvin's conclusion respecting the dissipation of its energy and consequent ultimate fate, it will continue to exemplify it. The transformation of the Earth from those early stages in which its surface began to solidify, down to its present stage, has likewise conformed to the general law. Among living things it is conformed to not only in the unfolding of every organism, but also if we draw the conclusion pointed to above, by the organic world in general, considered as an aggregate of species. The phenomena of mind, in rising from its lowest forms in inferior creatures up to its form in man, and again in rising from the lowest human form to the highest, illustrate it. It is again illustrated by the successive stages of social

In any case, organic evolution, whether it be explained by natural selection or by some more general formula, such as adaptation to environment, is but an element of the Spencerian evolution, which has for its subject-matter the entire cosmic process, from nebular condensation down to the products of social life in civilized nations.

The mechanical character of evolution as described by Spencer is thus self-evident. Not only the differentiations of organic species and animal instincts, but the highest manifestations of human life, are so many transitory stages in the endless development of cosmic forces which played upon one another millions of centuries ago amidst the earliest nebulae. And this development is independent of all internal finality; it is the inevitable result of antecedents determined solely by "circumstances"—*i.e.*, by chance—in their government and activities.

It is the office of this mechanical evolution,

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progress, beginning with groups of savages and ending with civilized nations. And we see it no less displayed in all the products of social life—in language, in the industrial arts, in the development of literature, in the genesis of science. . . .

"It (the Doctrine of Evolution) has for its subject-matter the entire cosmic process, from nebular condensation down to the development of picture-records into written language, or the formation of local dialects; and its general result is to show that all the minor transformations in their infinite varieties are parts of one vast transformation, and display throughout the same law and cause—that the Infinite and Eternal Energy has manifested itself everywhere and always in modes ever unlike in results but ever like in principle."—*Essays*, I., pp. 503, 505. The quotation in the text is from *Ibid.*, p. 493, "Lord Salisbury on Evolution."

according to Spencer, to reconcile the experimental hypothesis of Hume with the transcendental hypothesis of Kant as to the primary origin of the facts of consciousness.

Hume regarded " impressions," Kant " the passive phenomena of sensibility," as the primary data for the mind to work on. Neither of them took any particular care to discover the source of the raw material which they were thus able to deal with. Herbert Spencer, less exclusively introspective than Hume, less deductive than the great German critic, better trained than either of them in the observation of nature, immediately inquires into the genesis of the objective elements present in consciousness, and ascribes their origin to earlier phases of cosmic evolution.

He sees that man's mind was not at the outset a *tabula rasa*, for every *individual* inherits the accumulated experiences of his ancestors, and therefore there is some truth in the doctrine of Kantian idealism as to *a priori* forms, but the cerebral structure of the individual at birth is the heritage of the experience of the past. Hence there is nothing in the mind of the *race* that is not the result of experience, and in this sense the *a priori* position of the German philosopher is counterfeited.

Thus, too, it is not correct to say that man's mind is originally undetermined as to the associations of its states of consciousness, and in this sense Kant is quite right in treating it as purely receptive; but, on the other hand, the laws according to which the elementary data of consciousness are arranged are the result of observations accumulated in the past, and in this sense Hume is right in not calling by the name of "soul" the active principle which is distinguished from the impressions revealed by our states of consciousness.

Thus Herbert Spencer makes no more than a provisional concession, which is more apparent than real, to the "transcendental hypothesis," and his *ideology* is fundamentally the same as Hume's. The Scottish philosopher takes conscious "impressions" as his point of departure; Herbert Spencer finds their origin in the factors of cosmic evolution; but to both master and disciple conscious states, regarded in themselves as they are found in the individual of to-day, are nervous facts, automatically associated and organized, and man's mind is the passive result of their progressive organization.[1]

Thus Spencer's *ideology* does not differ fundamentally from Hume's "experimental hypothesis." How does he answer the *criteriological* problem? What *value* does he assign to the testimony of consciousness?

In other words, what is, according to Spencer, the objective bearing of our states of consciousness? What is the bearing of their relations?

When we make a statement, he says, the terms of the proposition are the translation of two states of consciousness. The proposition itself either connects them or disconnects them.

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[1] "Impossible as it is to get immediate proof that feeling and nervous action are the inner and outer faces of the same change, yet the hypothesis that they are so harmonizes with all the observed facts; and as elsewhere shown (*First Principles*, § 40), no other verification is possible for us than that which results from the establishment of complete congruity among our experiences."—*Principles of Psychology*, § 51.

The first question to clear up, is to find out what is the nature of the relation established by the proposition.

Let us start with some facts. Suppose the following are the propositions: The bird was brown—The ice was hot—The pressure of a body is exerted in space—Movement implies something which moves.

I can easily associate the attribute *brown* with the subject and the group of attributes denoted by *bird*, but I can quite as easily dissociate the attribute *brown* from the group of associations awakened by the name *bird* in my consciousness. If anyone were to tell me: " The bird was *necessarily* brown," that would be enough to call up to my consciousness an image of a yellow or a green bird. The connection between the states of consciousness expressed respectively by the attribute *brown* and by the subject *bird* is therefore not indissoluble.

But when the statement is made in my hearing that " The ice was hot," it is difficult, it may even seem impossible, for me to associate with the group represented by the subject *ice* the attribute *hot*. The sensation of *cold* is so strongly connected with the perception of *ice* that my first endeavours to separate the two terms *ice* and *cold* are in vain. If, however, by an effort of imagination I think of a temperature which would freeze water but yet be higher than that of the blood in my body, I succeed in breaking up the association of the states of consciousness denoted by the words *ice*, *cold*; in replacing it by the new association, *ice, hot.* My inability to think " The ice was hot " was, indeed, real at the outset, but it was only relative.

On the contrary, in stating the propositions: " The pressure of a body is exerted in space, movement implies something which moves," the necessity I experience is absolute, and it is proved by my inability to break up the association of my conscious states, which are represented by the terms of these two propositions, for my endeavour produces no result at all. Therefore the contradictory of these two propositions is unthinkable.

Now, says Spencer, a proposition is certain, when there is an indissoluble connection between the states of consciousness expressed by its two terms. The means of finding out the indissolubility of the connection between several states of consciousness, is to endeavour to break up the connection found in consciousness and to substitute the contradictory connection. The unavoidable checking of such efforts is the touchstone of certitude.

Hence Spencer concludes that the criterion of the truth of a proposition is the inconceivability of its contradictory.

It has often been said that Spencer's criterion is entirely *subjective.* And, indeed, in the *Principles of Psychology* there is more than one passage that justifies such a criticism, but it is certainly not in accord with the ultimate mind of the writer. In reply to John Stuart Mill, Spencer formulated his criteriological system more exactly. He openly repudiated subjectivism, and declared expressly that he regarded the inconceivability of the contradictory not to be merely an expression of a purely subjective inability, but the result of experience.

I *conceive* without difficulty and *believe* without effort that one bird is brown, and another yellow, because it has been my experience to see sometimes brown birds, sometimes yellow birds. I do not say that the proposition, "The ice was hot," is inconceivable, because experience provides me with means for imagining the freezing of water at a higher temperature than that of my body, but I call the proposition *incredible*, because it is not in accord with usual experience, and therefore necessitates an extraordinary mental effort on my part.

On the contrary, the proposition, "One side of a triangle is equal to the sum of the two other sides," is not only *incredible*, but also *inconceivable*. As for the cause of the inconceivability of this proposition, it is only to be found in its being in disaccord with all our own observations and with the uniform and permanent results stored up by the experiences of the past in our cerebral structure.

If we reply with Mill, that the ancient Greeks thought the existence of the Antipodes was inconceivable, while we not only conceive but admit it, Spencer answers that inconceivability of the contradictory is not a critical rule beyond which there is no appeal. And who is to hear this appeal? He alone who is able to read his own consciousness, and to reduce its data to their simplest elements.[1]

In these conditions, Spencer's critical theory

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[1] "In alleging that if a belief is said by some to be necessary, but by others to be not necessary, the test of necessity is thereby shown to be no test, Mr. Mill tacitly assumes that all men have powers of introspection enabling them